THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

VOL. CLIII. NOVEMBER 26 1937 No. 4947

NIGHT VIEW OF THE CZECHOSLOVAKIAN PAVILION, PARIS EXHIBITION

(See "Architectural Drawing," Page 967.)

MEETINGS

Friday, November 26.

Institution of Structural Engineers (Midland Counties Branch). Professor J. Husband on "The San Francisco-Oakland Bay Bridge." James Watt Memorial Institute, Birmingham. 6.30 p.m.

Civil Engineering Society of the Glasgow Royal Technical College. Mr. R. Marshall on "Structural Details." 7.45 p.m.

Friday and Saturday, November 26 and 27.

Royal Sanitary Institute. Meeting at the Town Hall, Stoke-on-Trent. Friday: Mr. H. Spencer, on "The Emission of Industrial Smoke." Chairman, Mr. W. T. Creswell, K.C. 5 p.m. Saturday: Various visits. 10 a.m.

Friday and Monday, November 26-29.

National Housing and Town Planning Council. Conference. At Harrogate.

Saturday, November 27.

London Association of Builders' Foremen and Clerks of Works. Annual Dinner. Connaught Rooms, W.C.2. 6.30 p.m.

Institution of Structural Engineers (Midland Counties Branch). Twelfth Annual Dinner. Grand Hotel, Birmingham.

Monday, November 29.

National Federation of Specialists and Sub-contractors. Third Annual Banquet. Park Lane Hotel, W.1. 7 p.m.

Tuesday, November 30.

Architectural Association. Mr. Eric L. Bird on "The A.A. Excursion to Paris, 1937." 8.30 p.m.

Housing Centre. Tuesday Lunch: Mr. Gerald Barry on "Schools Exhibition." 1 p.m.

Institution of Civil Engineers. Mr. F. C. Vokes on "The Design and Operation of the Coleshill Sewage-Disposal Works of the Birmingham Tame and Rea District Drainage Board." 6 p.m.

Tuesday-Friday, November 30-December 17.

Architectural Association. Exhibition of Photographs taken by members on the A.A. Excursion to Paris.

Wednesday, December 1.

Faculty of Architects and Surveyors. Tenth Annual Dinner. Hotel Victoria, W.C.2. 7.15 p.m.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher on "French Renaissance: (1450-1900): The Chateaux on the Loire." 6 p.m.

Institution of Heating and Ventilating Engineers and the Institute of Fuel. Lecture on "Fuels for Heating and Hot Water Supply." Institution of Mechanical Engineers, S.W.1. 7 p.m.

Institution of Civil Engineers (Manchester and District Association). Mr. A. C. Dean on "The Status of the Professional Engineer." 36 George-street, Manchester. 6.45 p.m.

Thursday, December 2.

Institution of Heating and Ventilating Engineers (Manchester and District Branch). Mr. T. Bedford on "Measurement of warmth in relation to comfort, with special reference to factories and shops." Milton Hall, Deansgate, Manchester. 7 p.m.

South Wales Institute of Architects (Central Cardiff Branch). Miss Elizabeth Denby on "Housing from a Woman's Point of View." Engineers' Institute, Cardiff. 7.15 p.m.

Institution of Civil Engineers (Yorkshire Association). Mr. E. L. Triffitt on "Reconstruction of Bridge at South Shields." Hotel Metropole, Leeds. 7.30 p.m.

Institution of Mechanical Engineers (North Western Branch). Annual Dinner. Engineers' Club, Albert-square, Manchester. 6.30 p.m.

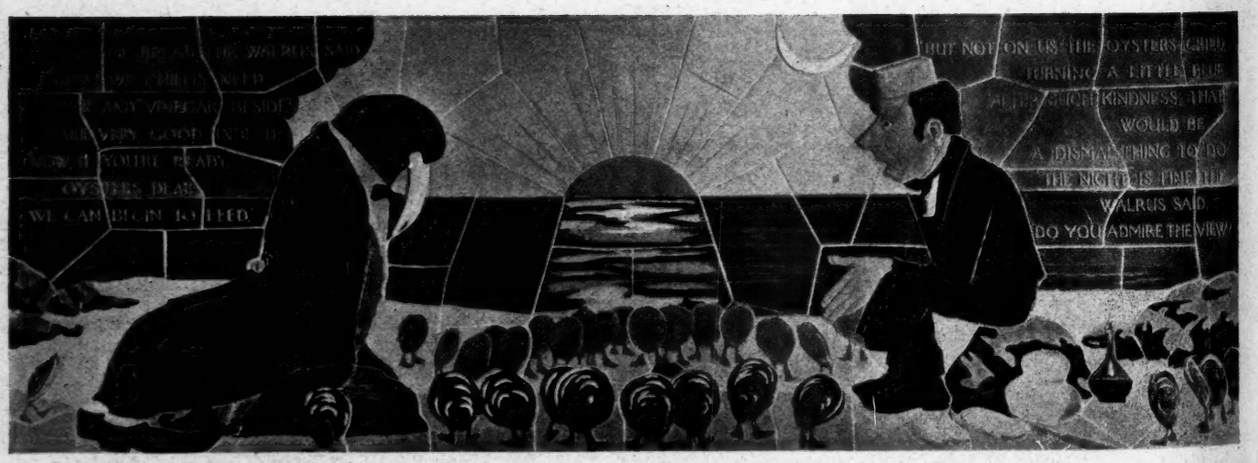
Thursday and Friday, December 2 and 3.

Institution of Mechanical Engineers (Scottish Branch). Mr. A. P. M. Fleming on "The Training of Personnel for Industry." Thursday: Royal Technical College, Glasgow, 7.30 p.m. Friday: Robert Gordon's College, Aberdeen, 7.30 p.m.

PANELS IN THE LEWIS CARROLL WARD, ST. MARY'S HOSPITAL.

"THE TEA PARTY."

"BILL THE LIZARD."


BUT NOT ON US THE OYSTERS CRIED
TURNING A LITTLE BLUE
A DISMAL THING TO DO
THE NIGHT IS FINE THE
WALRUS SAID
DO YOU ADMIRE THE VIEW

"THE WALRUS AND THE CARPENTER."

These panels are placed along a wall of the Lewis Carroll Memorial Ward, recently completed at St. Mary's Hospital, Paddington, W. to plans by Sir Edwin Cooper, R.A. The panels, which are executed in glazed majolica, represent scenes from "Alice," and have been designed by Mr. F. V. Blundstone, F.R.B.S. This ward and the new Paying Patients' block are illustrated on pages 971–974.

TOPICS OF THE DAY

NOISE PREVENTION IN BUILDINGS

THE experts came into their own on Monday night at the R.I.B.A., when Mr. C. J. Morreau gave an account of the work being done by the Department of Scientific and Industrial Research to lay by the heels the Demon Noise. The crowded house (another indication of the drawing power of "live" subjects) included many architects, but, while their interest in Mr. Morreau's admirable paper was evident, they modestly, but perhaps wisely, were content to leave the subsequent discussion to the experts, who proceeded to contradict one another with the greatest good will.

If the paper and discussion (which are reported elsewhere) produced differences of opinion, that at least is a healthy sign, showing that keenness and enthusiasm are qualities present in plenty among the scientists studying this important problem. At the same time, a good many architects and others who went half hoping that they were going to hear just how to design sound-proof buildings came away rather sadly, for it appears that while the principles on which sound-transmission in buildings operates have been fairly definitely established, the methods by which those principles may be applied in practice have not yet been discovered. Mr. Morreau was much more optimistic that research will produce these "missing links" than was Mr. Darcy Braddell, who remarked gloomily from the chair that, as he listened to all the experts talking on the subject, he could not help coming to the conclusion that possibly the easiest and simplest way out of the whole of the difficulty would be to be deaf!

The problem of transmission of sound is, as Mr. Morreau pointed out, a highly complex one and it is not known yet how to construct buildings, even at unlimited expense, which will prevent so effectively the transmission of sound that noise can be set up indiscriminately in any part and the insulation provided by the structure be relied on to prevent it being a nuisance in every other part. "This means," Mr. Morreau believes, "that the architect must consider the problem of noise not only as a constructional one, but also as a planning one, and he must in addition take the greatest care to specify quiet equipment."

And for the engineer as well as the architect, the following conclusion expressed by Mr. Morreau must give rise to thought: "The present trend of research suggests that the method most likely to prevent successfully the transmission of all kinds of sound is the provision of much greater discontinuity in buildings than is at present customary. The effectiveness of this principle is now being investigated with promising results. Whether or not it is practicable remains to be verified, for it implies radical changes in building methods."

This paper is a timely one, and the R.I.B.A. is to be congratulated on affording Mr. Morreau an opportunity to give to the architectural profession his excellent summary of the collated results of much difficult but invaluable research into a subject which intimately affects the comfort and welfare of all.

THE HAIG STATUE

THERE is no more difficult subject upon which to argue than Art, because there is no real basis upon which convincing proof can be placed. Controversy thus rests upon personal feeling and its expression. In the case of the Haig Statue there has been far too much uninformed criticism, and many things have been written which have been so absurd as to be almost laughable were it not that the subject is a serious one and that there are feelings to be considered which none of us would willingly affront.

The points at issue, in their reality, are whether this is a statue which adequately expresses its subject and material and whether its lines of design contribute their full art value—considerations which furnish the artist with a difficult problem. Upon this question there is no doubt ample room for a difference of opinion, and informed criticism can be expressed without offence.

The question as to whether Lord Haig was ever seen on a horse identical with that designed is a trivial matter and entirely unrelated to criticism of sculpture. A perfectly correct reproduction of a horse can be produced by mechanical means, and the world be no richer when it has been done. We are concerned only so far as the horse composes with figure and pedestal into a satisfactory whole; and upon this point artists and sculptors are not agreed beyond the fact that the work is a very competent one and not by any means the disaster which the more strident and least sensitive members of the public would have the world believe.

It is a matter of some regret that those most qualified to give constructive and helpful criticism are generally those least anxious to rush into print, so that the correspondence columns of the daily Press are apt to become overweighted with opinion which has little real value. Our artists would work more cheerfully if they knew that they were at least assured of informed support when such is merited.

TRAFALGAR-SQUARE

SIR EDWIN LUTYENS, it is reported, has been invited by the Office of Works to prepare new designs for the fountains in Trafalgar-square. Already there have been protests against any interference with the Square, but it cannot be doubted that Sir Edwin, whose skill in designing fountains is well shown in the beautiful Royal Naval Division Memorial on Horse Guards' Parade, would produce something very much better than the existing designs.

That genial and persistent critic of Metropolitan amenities, the late William Woodward, repeatedly referred to the Trafalgar-square fountains as "squirts"; and while this contemptuous description is by no means justified, it would not be correct to say that the fountains are adequate to their position either in design, scale or water effect. We trust, therefore, that Sir Edwin may not be prevented, by ill-informed criticism, from preparing his designs.

To criticise the fountains, however, is not to criticise the Square itself, which, nevertheless, has been more than once the subject of ill-conceived designs for re-planning. Laid out from the plans of Sir Charles Barry in the eighteen thirties, the Square is held by many competent judges to be masterly in its arrangement of levels and steps, though it might well be a little more formal on its southern side. Its defects in that respect, however, are not the fault of Barry. All in all, the Square is undoubtedly the best piece of formal planning (apart from Nash's Regent-street) produced in London during the nineteenth century, and we do not believe that any interference with its lay-out is likely to be contemplated.

Now that the Square is in the news, it may not be out of place to call attention once again to the fact that the pedestal at the north-west corner, intended for an equestrian group to balance Chantrey's George IV., still remains vacant. Is there no general of the Great War worthy of commemoration here?

NOTES AND NEWS

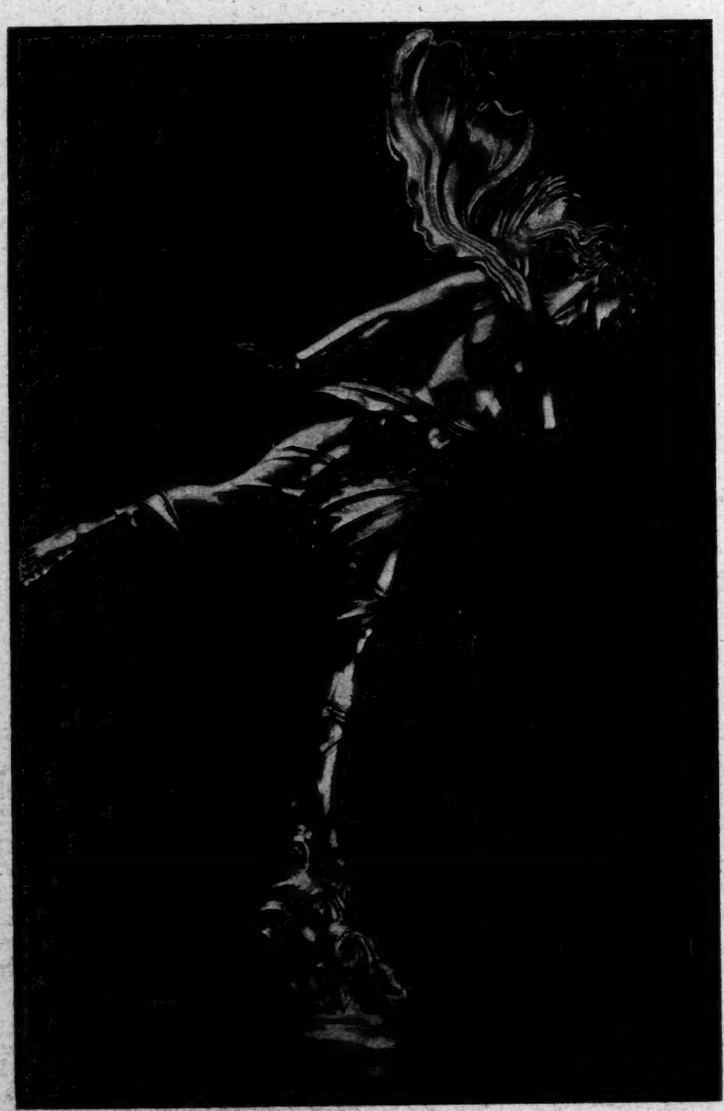
The R.I.B.A. Library Catalogue.

THE first volume of the long-heralded R.I.B.A. Library Catalogue, just issued, is a production of first-rate importance and one of very considerable poundage, as may be judged from the facts that it is demi-quarto (8¾ in. by 11¼ in.) in size, contains approximately 1,500 pages, and is about 3¼ in. thick. The necessity for it has long been apparent, for the last complete catalogue was issued so long ago as 1889, and a supplement in 1899, since when the library, which is admittedly the finest and most comprehensive of its kind in the world, has about trebled in size. The new catalogue is claimed to be the most complete architectural bibliography ever published, and it should be of very great value, not only to architectural students but to other libraries.

The Catalogue is to be published in two volumes. The first contains author entries to books and manuscripts arranged alphabetically, and the second (which is now ready for the press) a classified subject index to the whole library, and an alphabetically arranged index to subjects. Owing to a generous gift from Sir Banister Fletcher, it has been possible to publish the Catalogue at a price which is stated to be far below production cost, as follows: Volume 1, to members and honorary members of the R.I.B.A. and to allied societies, libraries, etc., £1 1s.; to non-members and libraries and institutions not allied to R.I.B.A., £2 2s. The cost of volume 2 has not yet been settled, but will be approximately half the price of volume 1. The work involved in the production of this Catalogue must have been prodigious, and felicitations are due to all who took part in it.

Concrete Making : Scientific and Unscientific.

MR. P. H. MANGIN'S paper on "The Scientific use of Concrete, and its effect on the cost of construction" attracted a large number of architects, engineers and surveyors to the Chartered Surveyors' Institution last week. The paper and discussion, which are given on page 987, were both of considerable interest. Mr. Mangin's remarks prompted some interesting reminiscences from Mr. Horace Langdon, who said that in listening to the author he could not help thinking how differently the making of concrete was dealt with to-day from the way it was done in former days, when concrete was mixed by a few men who really did not know what they were doing, except that they were earning or hoping to earn so much an hour. "I remember," he continued, "William Woodward, a very well-known London architect, whose name was one to conjure with a good many years ago, speaking in the hall of the Institution of the improvements which had been made in that respect, and of the different class of foreman that one found. One story of Mr. Woodward's was that he went on to a job one day and observed a man standing over a concrete bunker, the man being dressed in a very neat brown suit, with brown shoes and a brown bowler hat. He was so well-dressed that Mr. Woodward felt a little jealous, because he thought that some other architect had strolled on to his job, and he said to the man: 'Who the hell are you?' The man replied: 'I'm the blinking foreman,' and Mr. Woodward said: 'Oh, well, I'm the blinking architect; shake hands.' Only neither of them used the word 'blinking'!"



"ARIEL OF THE BANK."

This statue, by Mr. Charles Wheeler, A.R.A., F.R.B.S., has been awarded the Medal of the Royal Society of British Sculptors for the best work of the year, 1936-7. In gilded bronze, 14 ft. high, the statue surmounts the Sub-Treasury dome (over Tivoli Corner) of the Bank of England.

Commonwealth Fund Fellowships.

THE Commonwealth Fund of New York has established for British subjects a number of fellowships tenable at certain American universities. The fellowships, which are available for architects, are confined to university graduates, but a graduate who is taking a course at a school of architecture which is not a university school would be eligible.

There is no fixed stipend, but the emolument attaching to each fellowship, which is estimate at the approximate annual value of $3,000, is calculated to cover the full expenses entailed.

Copies of the memorandum and form of application for the Commonwealth Fund Fellowships may be obtained, free, on application to the Secretary to the Committee of Award, Commonwealth Fund Fellowship, 35, Portman-square, W.1.

Cambridge Preservation Society. Annual Report.

THE annual report of the Cambridge Preservation Society records a full and useful year's work. The past twelve months have seen the opening of the battle to save the Gogs, the uplands towards Vandlebury. A good deal has been done, especially in regard to the scheduling of land as agricultural by the County Council along the Roman Road.

Always entertaining is the annual review of the principal additions to the architecture of the town centre. The reconditioning of the north side of St. Edward's Passage, which has left intact the façade and roofs of the old houses, has been carried out and the brick painted white and red. Jesus College, we learn, spontaneously followed suit along their side of the square, and the colour scheme of the Arts Theatre has been altered to match. "The result," the report states, "is a real addition to the charm of the centre of Cambridge." Mr. J. Murray Easton's work on the University Press is praised. Anxiety for the future of Regent-street is expressed, as unity is being broken up as properties come into the market. Some details are also given of the survey which has been commenced on old buildings in Cambridge.

Sir Kingsley Wood on Public Works Schemes.

SIR KINGSLEY WOOD, the Minister of Health, in an address last week, said that in recent years there had been a considerable expansion of public works. Last year the total amount sanctioned was

some £96,000,000, a figure which had been exceeded only twice since the war, and then under exceptional circumstances. These works included large sums for hospitals, improved drainage, street lighting, public baths, open spaces and water works. So far as water works were concerned, the total figure for the last two years was much higher than for any comparable period. A sign of the times was the increased provision which was being made, largely in response to new conceptions of health policy, for open spaces, recreation grounds and swimming baths. Suggestions had been made by those suffering from "slumpitis" that various public works should be postponed pending the arrival of a slump in this country. In the first place, even those who strained their eyes the most could not yet see that slump. And, secondly, it would be generally recognised that it was not really practical politics to say, for instance, to local authorities: "Postpone your water schemes until the slump comes. We cannot name the date, but, never mind, let the supply of water wait."

R.I.B.A. News.

CHRISTMAS HOLIDAY LECTURES.—Members intending to send their children to the series of three Christmas Holiday Lectures at the R.I.B.A. are advised to apply for tickets early, as the demand always exceeds the number available. Also members are asked not to apply unless they are fairly certain the tickets will be used, and if a ticket cannot be used the holder is requested to return it immediately. Mr. G. A. Jellicoe, F.R.I.B.A., is the lecturer, and his subject is "The English Countryside." On Wednesday, December 29, he will discuss "The Countryside of To-day"; on Friday, December 31, "The Countryside of the Past"; and on Monday, January 3, "The Countryside of the Future." The time is 3.30 p.m.

SOCIAL EVENING.—A concert arranged by the R.I.B.A. Music Group is to be held at the R.I.B.A. on Monday, 6th December, at 8.15 p.m. Members are invited to bring guests, and there is no charge for admission. The full programme has been published in the current R.I.B.A. *Journal*.

R.I.B.A. EXHIBITIONS. — "Modern Schools" is being opened at the Public Library and Museum, Rugby, by the Mayor of Rugby, on Monday, November 29, at 7.30 p.m. "Airports and Airways" is to be opened at Hull by the Lord Mayor on Tuesday, November 30. "Civic Centres" closes at Kidderminster on November 30, and opens at Huddersfield on December 7.

THE LONDON BRICK ARCHITECTURE MEDAL.

This illustration shows the obverse of the Gold Medal which is annually presented by the Tylers and Bricklayers Company for the best Metropolitan building in brick erected within the previous three years. The medal this year was awarded to Mr. Edward Maufe, F.R.I.B.A., for his Students' Hostel, London Hospital, E.

Sizes of Sections and Joists : Reduction in Number.

WE are notified officially, on behalf of the Associated English and Welsh Steel Makers and the Associated Scottish Steel Makers, that in order to assist in speeding up the sequences of rollings, the heavy steel makers have, after consultation with various bodies of consumers, decided to request customers to confine their designs forthwith to a temporary reduced list of sizes of sections and joists. In order to enable work already in hand to be completed, the steel makers will, up to December 31, accept specifications for sizes other than those included in the list. As from that date, however, only the retained sizes will normally be available. Copies of the list may be obtained from Messrs. Peat, Marwick, Mitchell and Co., Royal Exchange, Middlesbrough, and from Mr. W. A. Millar, 77, St. Vincent-street, Glasgow, C.1.

Edward Prioleau Warren, F.R.I.B.A.

The death, which took place on Tuesday, of Mr. Edward Prioleau Warren, F.R.I.B.A., removes a noted collegiate architect who had carried out a great deal of work at Oxford and Cambridge and elsewhere.

Born in 1856, Mr. Warren was articled to George F. Bodley, R.A., and Thomas Garner, and played a considerable part in the revival of English domestic architecture on traditional lines. Among the houses he designed were Hanover House, St. John's Wood; Shelley House, Chelsea; No. 1, Campden Hill, in London, while he also built a large number of houses in the South of England and elsewhere.

It was as a collegiate architect, however, that Mr. Warren achieved his principal distinction, and especially at Oxford and Cambridge. At the former University he designed buildings for Balliol, Magdalen, Merton and St. John's Colleges, as well as the School of Pathology, built in 1925, and the Radcliffe Infirmary. His work at Cambridge included buildings at Trinity and Caius. Mr. Warren also designed buildings at Bedales School, Westminster, Rugby and Clifton, as well as churches at Caversham, Bishopstoke, Bryanston, Brighton and elsewhere.

It was a great disappointment to Mr. Warren that his scheme for the English Students' house at the Cité Universitaire, Paris, was never carried out. In 1927 he was invited by Lord Crewe, Lord Derby and Lord Hardinge to prepare plans which were unanimously accepted by the Committee. The elevations were exhibited at the Royal Academy and reproduced in *The Builder* for January 13, 1928. Owing to the subsequent financial crisis of 1931, the scheme was not carried out, and in place the French authorities decided to build a hostel which should depart from the original plan of being entirely for British students, and commissioned two French architects, Mm. Martin and Biew, to prepare a fresh scheme.

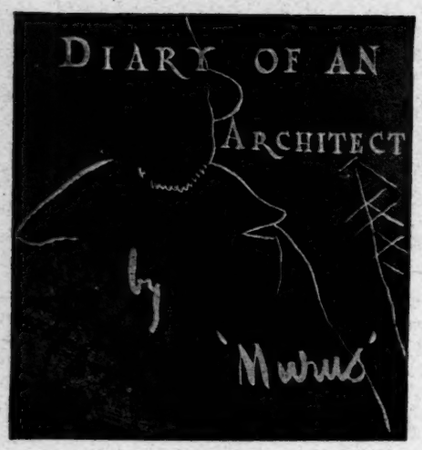
Mr. Warren at one time or another held a number of important appointments. He was principal architect for Mesopotamia Imperial War Graves Commission; British Representative on the jury of architects in the 1923 competition for International Labour Bureau, Geneva; and a member of the Committee of Honorary Consulting Architects to the Church Building Society. He was a Fellow of the Society of Antiquaries, a holder of the order of St. Sava and the Royal Red Cross of Serbia; and had been Master in 1913 of the Art Workers' Guild. His publications include "Life and Work of George Frederic Bodley, R.A."

Professional Announcement.

Messrs. G. A. Jellicoe and Partners have taken into partnership Miss E. A. Heckford, B.A., and the name of the firm is to be changed on December 1 next to "Jellicoe, Page and Wilson." The practice will be continued at the present address (38, John-street, Bedford Row, London, W.C.1).

THE LEWIS CARROLL MEMORIAL WARD, ST. MARY'S HOSPITAL, W.: A DECORATIVE PANEL. (See page 972.)

MR. F. V. BLUNDSTONE, F.R.B.S., SCULPTOR. SIR EDWIN COOPER, R.A., ARCHITECT



THESE be strange times, and beget strange people; and these same strange people achieve some amazing jobs.

In the Not-so-very-long-ago I was attending the A.A., and was contemporary with Raymond Walker (not to be confused with Raymond Myerscough-Walker), and he was a constant source of delight to all the members. Original, audacious, loquacious, smart—in short—amusing. A few days ago he summoned—yes, summoned—me to lunch; and in the Café Royal he expatiated to me on the new type of man arising in industrial-cum-æsthetic-cum-commercial ranks. He is the original of this new type of man, and styles himself Public Markets Consultant. I believe the title is right, but it means, in effect, an individual who, by his training, is fitted to step into the breach at present existing between manufacturer and consumer to provide a link which may consist of ideas, æsthetic production, tasteful display; and so on and so forth.

In short, he may consult with steel merchants on the perfecting of the rolled steel joist, or he may inform a publisher how to present to the profession a book. Good luck, I say, to our first Public Markets Consultant.

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In point of fact, it requires some erudite person to sort out, from the mélange of books which appear, those which are practical and dull, those which are practical and vivid, those which are vivid and non-practical, and those which are dull and non-practical. Of the books one reviews, there are few which stamp themselves on the mind as contributing to any original thought. Of those that I have read during the past few months, the authors of the volumes which interested me profoundly remain quite clearly in my mind.

* * *

There is Ouspensky's "Tertium Organum," which was published in America and consists of a definition (according to Ouspensky), of the whole concept of life and its relation to the dimensions by which we measure that life. The book's mainspring is an attempt to capture the logic underlying the fourth dimension of space-time, which will no doubt stand, in its solution, as the great contribution of this period. It is a theory underlying the efforts of all contemporary progressive artists, and though not seemingly practical to architects, in fact, presents the very base of all thinking. It is a difficult book to read—a book to buy (though I do not know how a copy can be come by)—and read leisurely.

Margaret Bulley's "Art and Understanding" is another of these books which, by their originality and profundity, jerk one into realising the value of Truth, particularly in its relation to the new æsthetics. To me, reading it, the sensation was not far short of a spiritual purging, which left me inspired to avoid the trivial in æsthetics. Again, it is not strictly architectural; but how tremendously valuable to the person who wishes to achieve the Spirit in Architecture!

* * *

John Holmes's book on "Colour in Interior Decoration" is a further tremendous experience. Here a concise theory of practical colour relations is laid down in such a way as to produce in one a fine basic method of colour understanding and application. Really, it makes clear all the nebulous feelings one has about colour, and the application of which we usually relegated to that vague quality called Taste. At any time I would prefer to witness a professional knowledge of colour theory rather than an accident of instinctive colour sense, much as I would prefer to hear a trained musician as opposed to one "who plays by ear."

* * *

I wonder how one would define the word original? At a recent show of drawings in Piccadilly by Nijinsky, the dancer, who now lives in a mental home in Switzerland, fresh shapes and colours had been drawn by him to represent heads, and that were abstract inasmuch as they were not drawn realistically. They may, I suppose, be termed original, but to use the word in that sense does not suggest that originaltiy need be particularly profound. They were exhibited alongside the works of a painter by the name of Henning Nyberg; and, about these lovely paintings I suppose one could say the reverse to what I have just said apropos Nijinsky—namely, that they were profound but not original.

* * *

Certainly, the private view I saw recently of the Society of Portrait Painters contains paintings about which one may say truthfully that neither of these aforementioned qualities exists to any degree.

* * *

Competent, yes! tasteful, umph! ambitious, ah! but original, no! and profound, not at all. It is not easy, you know, to paint important people and retain one's sincerity. If the sitter is to buy that portrait, then it must be to his or her liking. *He* will insist on the double chins being carefully avoided, *She* the crow's-feet. There are, of course, other pitfalls, and the prize goes to those who most flatter the sitter.

* * *

It was a full gallery, and I imagine a great deal of commissions are placed through the success of certain painters at this exhibition. Next to the Royal Academy this show is the smartest in London, which speaks well for the popularity of the concern but not so well of the crowd's conversation. Mark Hambourg did at least contribute something to an otherwise fatuous asembly by his remark that it was a wise man that knew his own portrait. And, sad to relate, the architectural profession was not represented by one sitter; I wonder why some of the presentation portraits that have been recently done were not lent for the affair?

Murus

PLANNING THE THAMES VALLEY.

THE Thames Valley between London and Windsor is one of the finest and most used playgrounds in England. It provides a spacious outlet for the recreation of the people of London, and a combination of features of historic interest and natural scenery probably unsurpassed in the environs of a great city. The duty of preserving the amenities of the Valley falls upon the local authorities which have town planning powers, and have their areas intersected by the river.

These authorities lie in parts of the counties of Middlesex, Surrey, Bucks and Berks. Ten of these authorities joined together in 1922 and formed the Thames Valley Joint Town Planning Committee. They represented an area of 23,615 acres between Esher and Chiswick. The Committee retained Mr. Thomas Adams, F.R.I.B.A., F.S.I., as consultant, and reports prepared by him and Mr. Longstreth Thompson, F.R.I.B.A., were published in 1923 and 1925. The Committee now includes representatives of 16 local authorities between Windsor and Chiswick, 3 County Councils, the Port of London Authority, the Thames Conservancy Board and the Ministry of Health.

The work of the Committee includes the following: (1) Maintaining a constant check on all proposals in schemes so as to secure that they are co-ordinated with one another and with the Regional Plan, and make satisfactory provision for securing open spaces and preserving amenities. (2) Considering reports on special features and securing the co-ordination of the Conservancy of the River for water supply and the promotion of river navigation in harmony with the preservation of the amenities of the River Valley. (3) Encouraging the acquisition of areas having features of historic interest or scenic beauty and, during the past year, the development of special planting projects in celebration of the Coronation. (4) Investigation of such matters as: Preserving or securing a public right-of-way along towpaths; prevention of injury to amenities by public advertising, by gravel pit excavations and lopping of trees; control of densities of flats and houses so as to secure adequate open space about dwelling; and intrusion of industry in residential areas.

It is highly desirable for the planning authorities to act jointly in dealing with these matters of common interest, in order both that they may be considered in relation to the whole stretch of the river between Putney and Windsor, and that representations to the County Councils and the Minister of Health can be given the fullest possible weight. The Minister has indicated his willingness to receive any representations. Residents of the communities of the Thames Valley who are interested in any local aspect of preservation or development are invited to communicate their views to the Honorary Secretary of the Joint Committee at the Council House, High-street, Mortlake, S.W.14.

Many changes are taking place in the Valley as a result of the conversion of the spacious grounds of old and obsolete houses near to the river into building estates for small houses. New problems are arising in connection with the increasing tendency to erect blocks of flats. Other changes are resulting from development of new arterial roads and incidental uses of the new road frontages for trade and industry. These changes are inevitable. While they cannot be prevented, they may be properly controlled to a large extent by means of town planning schemes.

One of the most beneficial results of the town planning that has been done is the provision made or being made in the schemes to increase the extent of public open space in the region. In this connection the County Councils have given most valuable financial aid to the local planning authorities. Two important questions are receiving the consideration of the Committee at the present time, viz., the effect of the proposals for erecting a barrage on the Thames, and collaboration with the Port of London Authority with regard to the control of advertising on the river front.

ARCHITECTURAL DRAWING—III.

By R. MYERSCOUGH-WALKER, A.R.I.B.A.

4.—THE TWENTIETH CENTURY—AND AFTER.

Via this extremely brief historical survey, then, we come to our confused twentieth century.

Although the machine is of the nineteenth century, it may be fairly said that the full force of the reaction from the crafts to the machine has been delayed until our time, and, in the analysis of our period, do we find the result of the machine.

The confusion which faces the critic is, perhaps, no greater than the confusion facing any critic in writing about his own time. In the previous sections, for instance, we have merely taken those draughtsmen whose work has stood the test of time and discussed their results. About the twentieth century the critic must tread carefully, (*a*) because the draughtsmen are still living and (*b*) because it is presumptuous to set oneself up as a fit person to sort out the good from the bad and earmark the privilege of being the judge of a period of time, a number of men and the value of their accomplishments, when one is in such close proximity to that time. So far as the period as a whole is concerned, there is no question about the chaotic outlook and there is, equally, no question about the relative badness of architectural drawing, taken by and large.

Out of the whole of the subjective architectural draughtsmen there is not one person who may be placed alongside the highlights of any other given period to compare favourably. General taste is bad and the architectural drawings are a reflection of that taste; the reasons for such a bad state of affairs are about as difficult to ascertain as the reasons for the good state of affairs in the seventeenth century.

Let us approach the subject carefully in the hope that an analysis might be possible. First, let us confine ourselves to the subjective draughtsman: he who puts down on paper the design of an, as yet, unbuilt structure in order that its visual state might be easily apprehended by the lay person and even the architect.

His studies are based on the commissions given him by the architects, and it is necessary, therefore, first to inquire about the work of the average architect.

Here it is quite clear that the outlook is confused; the Gothic and Renaissance revivals have disappeared to make way for an architecture based on the logical reflection of machine-made, as opposed to man-made, buildings, and, while these two extreme and opposite points of view are clear to see in theory, it is an obvious fact that nine architects out of ten *may* see the theory, but continue, in practice, to satisfy their clients who do not see this issue, but are rather behindhand, and therefore still in the throes of the crafts. This desire to satisfy is illustrated by their adherence to tradition, and to satisfy themselves (because they realise quite clearly the style of the future) they adhere to a form of architecture which does not expend money on the crafts—columns, mouldings, etc.—and, instead, seeks the clean-cut finish of the machine.

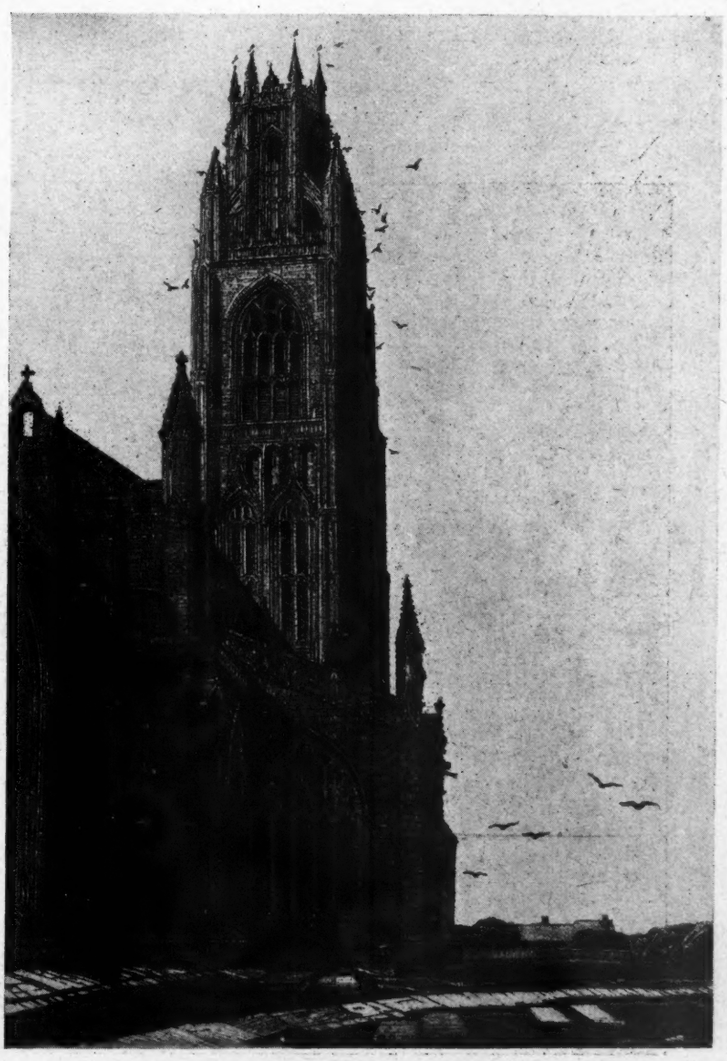
The result, obviously, is a compromise, and this hesitancy between one form and another transmits itself to the person responsible for interpreting the building—the subjective architectural draughtsman—in such a way as to set up a similar confusion in ideals.

In other words, the draughtsman is torn between traditional and contemporary thought, and in a number of ways this struggle manifests itself. For instance, a so-called "modern" architect (if he feels his design to be possessed too much of the *avant garde* spirit) will employ a person like myself to soften, by landscape, skyscape and so on, the severity of the structure. I am to satisfy a traditional client for a contemporary architect, and, no matter how cleverly I perform this feat, it remains as a study in draughting acrobatics rather than the sincere solution to a problem. The reverse might obtain: a traditional architect may wish to impress an up-to-date client, and the solution here lies in employing a subjective architectural draughtsman to "streamline" his traditional design.

Whatever the tricks employed are, the position is this: the ideals as between client and architect, or client and client, or architect and architect, or architect and draughtsman, or draughtsman and draughtsman are different. The difference of outlook is universal, and it is only to be expected in an age which may be likened to the end of the Gothic and the beginning of the Renaissance. This will be put down as a time in history when 98 per cent. of the people fell between two stools, while 1 per cent. stood bravely by their past traditions and the other 1 per cent. pushed forward towards where they imagined progress to lie. It is so in all the contemporary Arts and it is so in architectural drawing—objective, subjective or topographical.

Primarily, then, you must divide the radical from the diehard, and those which may be classed as neither of these things may be put down as falling between two stools and therefore negligible in progressive argument. It goes without saying that the majority is made up of those draughtsmen we know and about whom I have no wish to make individual criticisms.

About the qualities of modern architectural draughtsmen in general, it may be said that they are, for the most part, on the side of the painter, with whom they would associate themselves. They do this partly to satisfy their own "artistic" ambitions, but mostly to satisfy their architectural clients whom they know to like subjective architectural drawings akin to topographical paintings. A straightforward architectural drawing would strike an architect as being some-



ST. BOTOLPH'S, BOSTON.

FROM AN ETCHING BY F. L. GRIGGS, R.A.

thing possible of production in his own office. He and his clients in turn want a pretty picture, and, since the subjective architectural draughtsman is always an architect who has never been able to practise, he must please these people or fail in his work.

There lies the root of the whole, somewhat sordid problem—the subjective architectural draughtsman has become the Cylinderella of architecture and the architect has merely to turn on the tap. The faster the tap is turned, the bigger is the splash and the sooner poor Cylinder empties.

The draughtsman, known usually as a "perspective man"—more correctly a perspectivist—may enjoy quite a large income, but the perspectivist who achieves this doubtful state of success is he who will prostitute himself most to the client. The result, of course, is an extremely low standard of sincerity and a very slick standard of drawing. I don't suppose the average perspectivist can be beaten for his ability to apply water-colour washes, and I don't suppose the average painter can put his finger on a bigger piece of counterfeit art.

A sincere artist sees in the perspectivist a man who does not frequently set up his own drawings and who merely applies the washes at the end of this more laborious task. He sees the lighting as a pure piece of hypothesis not always convincing, the colour as a crude misuse of the spectrum, the animation as an entirely unrelated essay of draughtsmanship and the form of the building as being subsidiary to the general effect of the pretty water-colour. The sincere subjective drawing is to be found in the work of architects who are enthusiastic enough to prepare their own sketches, though frequently these are merely an attempt to imitate the perspectivist.

On the other hand, the objective draughtsman has reached a high state of development aided by the recent mechanical discoveries. He is concerned with mechanics only and he is fortunate in living in a mechanical age. About the best of this work I feel that an ideal has been reached, and it is most certainly the strong arm of architectural drawing.

The topographical draughtsman is completely in the soup because his main job—which is to record a scene—has passed into the realm of the machine: the camera. A photograph records a scene, and, although it may lack the selection of the human mind, it may be said to record a scene well enough to knock the bottom out of topographical drawing.

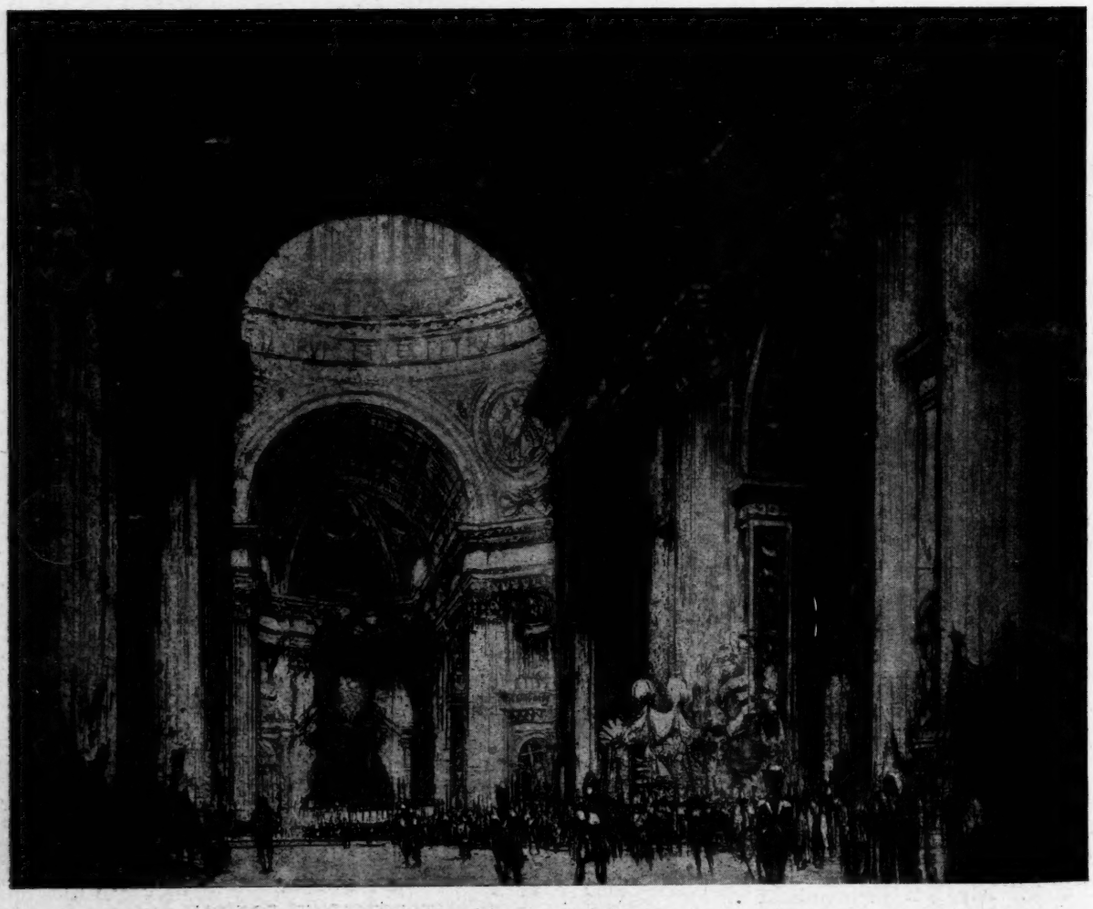
For this reason, painters generally are becoming more concerned with the spirit of the subject rather than the purely visual aspect of the subject, and we have already seen how the topographical draughtsman cannot follow this spiritual element at the expense of topographical correctness.

So, while it is true that certain of these draughtsmen may, and have, achieved fame, it is safe to say that the intensity which causes all branches of the Arts to live must give way, in this case, from a national urge to an individual pastime. History, in short, brings us back to first principles, the objective and subjective drawing. The former is a live thing; its ideals are sure and its necessity as a part of architectural practice is certain. The latter form of drawing has fallen into decay by the undue influence of the third form of architectural drawing which is dying or dead. I am not concerned about the possible death of subjective architectural drawing because it has functions to perform which are still vital—that of interpreting in a visual manner a proposed building—and for that reason I would like to devote myself to the reformation of this branch of architectural art and give the basic principles which must be imbued in such a type of drawing. Actually, I am not erudite enough to lay down basic principles, but if I open the doors of inquiry, then I feel my share of reformation to have been performed.

5.—THE FUTURE.

Having noted down the past styles of architectural drawing and its present tendencies, faults and virtues, it would seem that one way of crystallising their acquired knowledge is to hazard a guess as to its future. By that means one may possibly arrive at the form of expression one should at this moment be exploring. Which is merely another way of saying that the progressive draughtsman must always work in the style that he imagines will be the everyday expression of the future. And for reasons stated in the previous section, the hazard may be confined to one branch of architectural drawing only—*i.e.*, subjective.

The question is perhaps best answered by dividing this branch into its two main functions—those of architectural outlook and the possible mediums of expression. It is clear, so far as the former function is concerned, that the æsthetic outlook of architects will dominate the style of future architectural drawing, and subsidiary to this will be the mediums and



ST. PETER'S, ROME.

FROM AN ETCHING BY WILLIAM WALCOT.

methods of recording which the draughtsman will use to commit this outlook to some sort of presentation.

Of the architecture that is to come, the issue seems to be quite clear, although of such dimensions that I hardly feel this is the appropriate place for a full-length analysis. It may be briefly summarised as a clear-cut expression of the machine. At this moment the struggle to be perfectly functional or descriptive is dominating the minds of all progressive designers, and there are, of course, a majority of designers who are holding back, clinging on to the past until they are assured of the material success of the style now being attempted by the *avant garde*.

This function, once it is achieved, will leave the field clear for the designer to go beyond Thoughts into the realm of Things; a purely spiritual realm out of which architecture may be returned once more as a major art. About this renaissance of architectural art I am convinced and it will manifest itself in a logical use of materials, a higher standard of living and a finer spiritual concept than we attempt now. When I think in terms of future architectural drawing, these possibilities are constantly in my mind, and it is the sincere expression of this form of architecture that requires a solution in its subjective presentation.

Now, a fundamental confusion exists at this moment because to interpret this form of architecture (easiest understood, perhaps, by thinking of the work of le Corbusier and Gropius) in the mediums to which we are used is difficult, if not impossible. It is easy, for example, to draw and render a half-timbered public-house in water-colour because it employs the picturesque use of materials which make the use of this medium appropriate. On the other hand, it is extremely difficult to apply this expression of water-colour to a metal and glass structure, floodlit, without one or the other looking incongruous, and we have said that the public-house would be appropriate.

Out of this simple test, therefore, it seems clear that the medium of architectural drawing will have to undergo a fundamental change to represent the juxtaposition of contemporary materials in anything like a convincing manner. We have seen that the Babylonians did drawings on clay and the seventeenth-century draughtsman on copper; the eighteenth-century in water-colour and the nineteenth-century with ink on paper and water-colour. None of these mediums will solve our problem except in individual cases, and a further form, or perhaps a combination of past forms, must be brought forward to interpret this new style of architecture.

Among individuals there have been strivings for a new expression. Hugh Ferris may be said to have solved the delineation of the sky-scraper building by his charcoal studies and le Corbusier his own designs by means of a pen-line. In other words, both draughtsmen used a past medium in a new way, and, by so doing, opened up one solution of the problem as a whole.

My feeling is that this is by no means the real solution which must, by all the circumstances surrounding it, employ the machine. A mechanical architecture, it seems to me, is best served by a mechanical medium, though the excellent drawings of certain individuals may appear to confound this statement. The mechanical means at the disposal of the architectural draughtsman are—the printing processes, the camera and the aerograph.

"LONDON UNIVERSITY—A NOCTURNE."
DRAWN BY R. MYERSCOUGH-WALKER.

The architectural drawing of the future will employ these mechanical aids in any way that will help them to record a design, and in so doing they will be opposed to all other forms of drawing which will deal with the job of pure æsthetics, and that to me seems right. Just as the future painting will not be a literal translation of a scene (a function which will be performed by the camera), but rather an attempt to set down within the limitations of a given medium a truly æsthetic ideal, so will architectural drawing aim to reduce form to two dimensions without concerning itself with the more spiritual aspect of painting.

In this year's Royal Academy was a room devoted to architectural drawings and there were very few drawings which could be called architectural. On the other hand, there were a tremendous number of drawings which could be called paintings or which aspire to the ambitions of a water-colour painter, and it was apparent that they were completely, utterly and unmistakably "up the wrong tree."

Out of this mélange of expressions something which is appropriate to the age, consistent in its broad principles, sincere in its purpose, must evolve, and it is this something which concerns me at this moment.

The first aspect of any reformation strikes me as being concerned with the method of approach. Various designs are notable by their various preoccupation with certain problems: a building may be an integral part of a town plan; another may strive to harmonise with its immediate environment; a third may perform its preconceived function as a floodlit structure; and a fourth may be an addition to an already existing structure.

The average contemporary draughtsman would present all these subjects as a water-colour sketch or a black-and-white drawing as seen from the ground or the air. Think of the Architectural Section of the Royal Academy, and then imagine what the average solution to these problems would be. My point is that the approach would be similar in medium and method, though probably diverse in the actual viewpoint of the spectator; and it is wrong, simply because the four problems require a particular approach if they are to be convincing.

It is probable, for instance (though I do not put up these solutions as being ideal), that No. 1—the building as a part of the town-plan—might be interpreted by the use of an aerial photograph of the kind used for surveys, having superimposed in line the proposed building relating in the same scale to its surroundings; that No. 2—the building attempting to harmonise with its surroundings—might be, primarily, a thorough study of those surroundings set down in perspective and to scale in a way which left no doubt as to the importance and truth of the environment; that drawing No. 3—the floodlit structure—might scrap the medium which, by its use of pigments, cannot suggest artificial light except in a crude way and use instead a material for drawing on, and a spray for the application of the colour, in such a way as to clarify the lighting; that drawing No. 4—an addition to an already existing structure—might use a photograph of the existing structure and a photograph of a model of the proposed structure in a combined way to give a photographic homogeneity to the whole and stand as a sincere way of portraying one's architectural intentions. As I have said, these are not necessarily ideal solutions, but, along the lines of using all forms of presentation in order that the ideal of a particular design may be reached, is my conception of future architectural presentation

Another thing which I feel to be lacking in presentations of this sort is the ability to reproduce the original presentation in order that a number of copies may be obtained. In the average building a number of interested parties exist to make a practical use of the presentation of the building, and, while it is true that a photograph may be taken of a water-colour perspective, I am convinced that more authentic copies of the original are required and would be greatly appreciated by those whose job it is to attend to some aspect of the new structure.

The mediums that immediately occur to one for such reproduction are the lithograph, the etching and the engraving

processes. These, as we know, have been used in the past, and, so far as engravings are concerned, the heritage of the seventeenth-, eighteenth- and nineteenth-century books on architecture, such as Kip's and Piranesi's, is sufficient to surprise me into a speculation as to why such methods have been dropped. The water-colour drawing has its reason in painting, but, since we are not concerned with painting, I cannot see that the use of this medium has benefited the architect. It is true that engravings and etchings entail greater labour than drawings, but, if that is the case, then the lithograph should have survived.

The truth is that the average perspectivist can neither engrave, nor etch, nor use the lithograph, and I would not suggest that they begin now, but recommend instead that they cultivate the colour lithograph. Another medium is the plaster cast, and an example I did for Sir John Burnet, Tait and Lorne may serve to show how the complicated subject of a new small town can be cut in plaster, a mould taken and a number of duplicates cast.

The real solution to architectural presentation lies in the foundation of a studio dominated by the subjective architectural draughtsman who uses a mixture of mediums and employs a number of craftsmen to perform these mediums. A skeleton staff for such a studio would consist of a secretary, a model-maker, a photographer, a draughtsman and an all-round craftsman capable of preparing grounds for the model-maker, making mounts for the various presentations and framing. With such a staff and the equipment that goes with it—plus a lithograph press and a printing press—the architectural artist could apply to each problem the logical approach and the appropriate medium or mixture of mediums.

I cannot give examples of what work such a studio could do, because it is only in the writing of these articles that I have begun to perceive the solution. And please don't think that every architectural presentation would be a slick combination of effects rather like a McKnight Kauffer poster. Some would be ink and wash studies, some would be water-colour drawings, some would be tempera paintings, some would be colour lithographs, some would be plaster casts, some would be photographs, some would be models.

The point is that they would all attempt to set down in a convincing way and to an appropriate scale the project in hand—with taste and with purpose.

(*Concluded.*)

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Official Architecture.

SIR,—Whilst sharing our President's desire to uplift the art of building, may I question his tactics in creating and/or widening a breach between two sections of the profession?

At 50 years of age, with not inconsiderable experience in "both camps," including a present intimate and, to me, happy official relationship with many of my "outside" professional colleagues, I have learned that good architecture is not peculiar to either free-lance or official positions, but is due, so I believe, to the spirit and vision of "the man at the top."

The private practitioner may be more trammelled by a monetary outlook than any official by his committee and seniors, whom he may, and does, so often inspire. "Quinneys" reminds us that "people are more important than things," even building things, and there seems little doubt that in this difficult and changing world an official position is now generally preferred by very many of the younger generation.

I am not anxious that the spirit of adventure may be stifled, for opportunity is never lacking to those who really desire it. Let us therefore seek unity, for in that way lies our hope for advancement in all things, including the art of architecture.

F. T. BUSH, Assoc.R.I.B.A.,
Deputy Police Architect and Surveyor.
New Scotland Yard, S.W.1.

SIR,—As an ordinary assistant in a Municipal Department, I was pleased to see the letters of Mr. G. Noel Hill and Mr. Stephen Wilkinson in your recent issues, and to realise that official architects throughout the country are alive to the present policy of the R.I.B.A. respecting official positions.

It is increasingly obvious (reluctant though one is to conclude this) that the R.I.B.A. is concerned solely with the interests of one section of the profession, if necessary at the expense or to the detriment of another and possibly larger section, and unless some strong opposition is immediately raised such undermining influences as unwarranted circular letters to local authorities, deputations to Ministers of the Crown and speeches that are delivered on occasions that admit no opportunity of reply will continue.

I cannot recall any similar attacks by other professional organisations on their members; on the other hand, the British Medical Association, the Law Society, and the Institution of Civil Engineers, bodies comparable to the R.I.B.A., and each presumably having an equally deep interest in the welfare of the members of its own profession, appear to give full support to such of their numbers as are employed officially, in several cases bringing pressure to bear by "banning" members from applying for positions where the salary offered was considered below the minimum that should obtain.

My own humble opinion is that the practice of work being done by salaried architects on the staff of local government authorities and large commercial undertakings will continue, and the course that the R.I.B.A. should pursue would be to urge that the architects responsible are given status as such, and not submerged as assistants under other departmental chiefs not themselves architects.

To conclude, if official architects are to safeguard their existence one of two courses must be followed: either organisation must take place within the Institute, a proportional representation of salaried members being obtained on the Council and Committees at the annual election, or, alternatively, another society must be formed, although in view of the far too many architectural societies now in being this latter course would be regrettable. I hope that some lead will be given and a policy instituted by the leading official architects so that the ordinary assistant's vote at the next election might be used to some purpose.

ASSISTANT ARCHITECT.

SIR,—The Executive Committee of the Council has had under consideration the correspondence in the professional Press criticising certain passages in the President's inaugural address on the subject of official architecture.

It is perhaps not generally known that Mr. Goodhart-Rendel went into hospital for a serious operation on the day following the delivery of his address, and while I am glad to say that he is making a good recovery, he is not yet able to reply to his critics himself. To this extent the hands of the Executive Committee are somewhat tied in dealing with the criticisms which have been made, especially as the President was at some pains to make it clear that he was giving his personal views in his own language.

The matter has been referred to the Official Architects' Committee of the R.I.B.A., and it will come before the Council at their next meeting.

Possibly it has hardly yet been fully realised, even by some of those whom it represents, that an Official Architects' Committee has been set up in the R.I.B.A. on the recommendation of the Constitutional Committee. This was a further step, following the institution of the Salaried Members' Committee some years ago, in the policy of the R.I.B.A. towards the close participation of official and salaried architects in the affairs of the Institute. The new by-laws now in force provide that the chairmen of both these Committees shall be ex-officio members of the Council, so that there is set up within the Institute an organisation for dealing with all matters affecting official architects.

This policy has undergone no change, and has the President's full support.

H. M. FLETCHER,
Hon. Secretary,
Royal Institute of British Architects.
66, Portland-place, W.1.

COMPETITION NEWS

Bathing Station, Hornsea U.D.C.

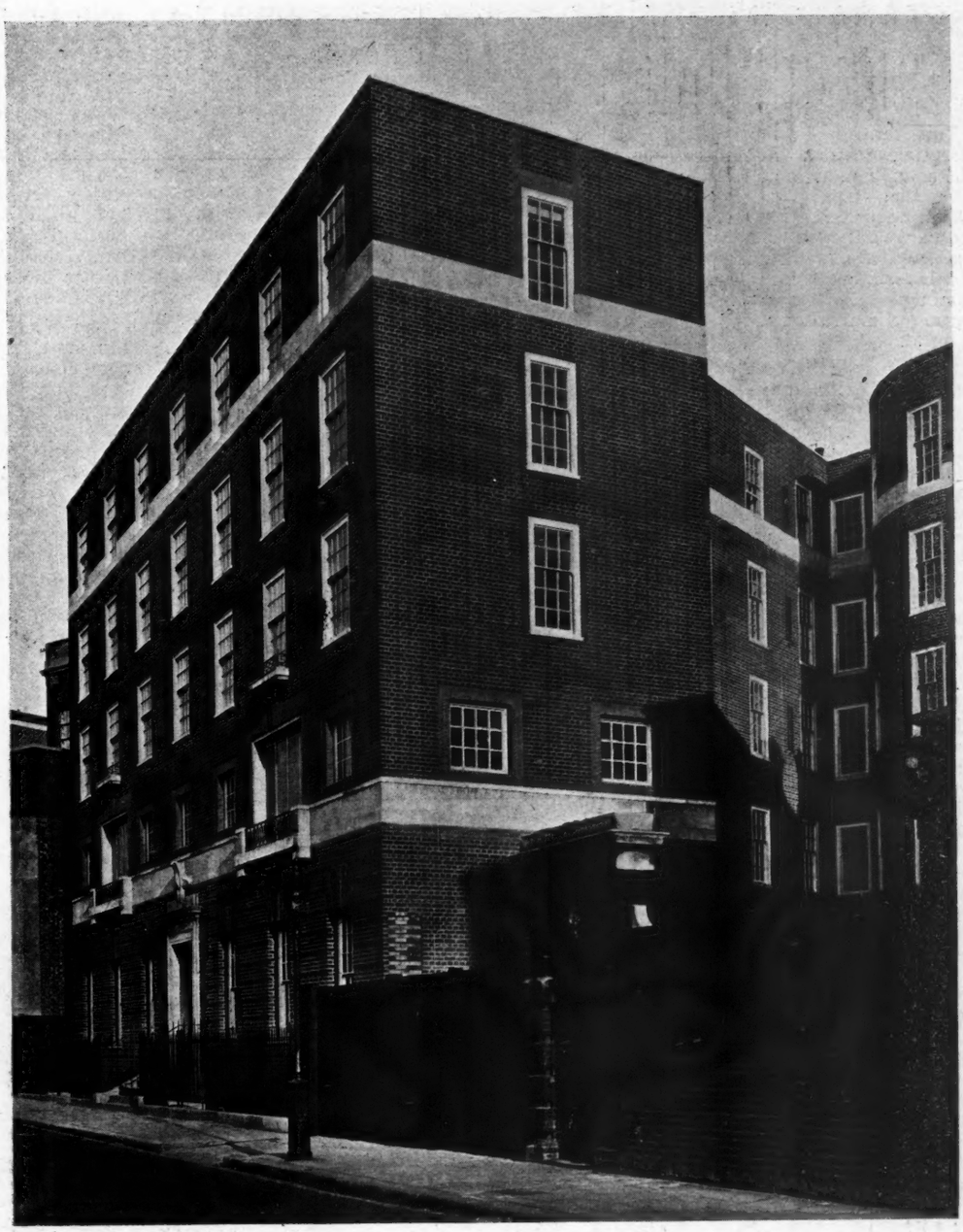
The R.I.B.A. Competitions Committee call the attention of members to the fact that the conditions of this competition are not in accordance with the regulations of the R.I.B.A. The Competitions Committee are in negotiation with the promoters in the hope of securing an amendment. In the meantime, members should not take part in the competition.

Poster Hoarding Competition.

The name C. W. C. Milburn, F.R.I.B.A., M.T.P.I., as one of the jury of assessors in this competition (details of which were given in our last issue), should read C. W. C. Needham, F.R.I.B.A., M.T.P.I., Mr. Needham being the President of the York and East Yorkshire Architectural Society and the representative of that Society on the Jury of Assessors.

CURRENT COMPETITIONS.

A glass house, for erection at Ideal Home Exhibition. Messrs. L. H. Bucknell, G. Grey Wornum, J. M. Easton and Maurice Webb, F.R.I.B.A., assessors. Premiums: £100, £50 and £25. Conditions from Building Centre	Particulars published in "Builder." Oct. 8	Sending in date. Nov. 30
Senior mixed school, for Keighley E. A. Mr. Harold Dod, F.R.I.B.A., assessor. Premiums: 150, 100 and 50 gns. Conditions (dep. £2 2s.), Director of Education, Keighley, Yorks	Aug. 6 Aug. 20	Dec. 22



GENERAL VIEW FROM SOUTH WHARF ROAD.

EXTENSIONS TO ST. MARY'S HOSPITAL, W.: NEW PRIVATE PATIENTS' WING.

SIR EDWIN COOPER, R.A., ARCHITECT.

EXTENSIONS AT ST. MARY'S HOSPITAL, PADDINGTON, W.

SIR EDWIN COOPER, R.A., ARCHITECT.

NEW PAYING PATIENTS' WING.

THE latest addition to St. Mary's Hospital, provided through the generosity of an anonymous donor, is in character with the other new works which Sir Edwin Cooper, R.A., has designed here in recent years. It occupies a somewhat restricted site, with a frontage to South Wharf-road, and is in itself a complete administrative unit having but slight internal communication with the main hospital.

The elevation to South Wharf-road is impressive in its proportions and handling of materials, which follow the newer traditions which Sir Edwin has established in his post-War rebuildings and additions. The infinite variety of the English manner of design within its own code of manners is well illustrated in this elevation, the dominating features of which are the arched motives on either side of the main entrance. These features succeed most happily in welding into a traditional scale of design the vast glass areas which the modern operating theatre demands. If these are not the first decorative operating theatres in the world, they must be in a very select company.

The portion built at present is not the complete building, as there are two storeys yet to be added. The building, however, looks complete, and with its skilful handling of bricks, stone and bright paintwork, sets a note of distinction in a street which has a future before it.

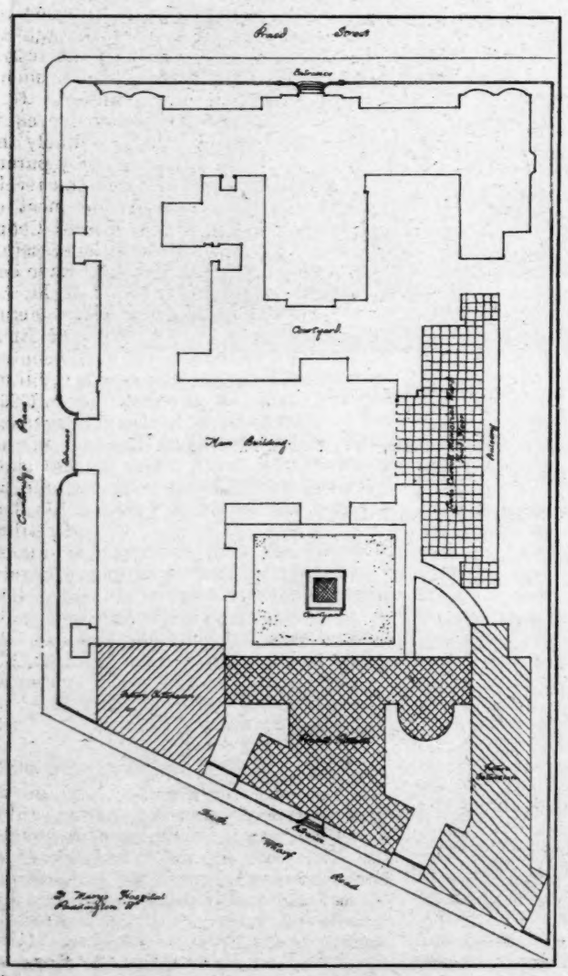
The site is much restricted, and the amount of accommodation which has been set upon it is remarkable. The plan assumes the form of an R.S.J. with unequal flanges, the shorter fronting to South Wharf-road; the longer, comprising the rear wing and the "web" forming a connecting block between the two "flanges." In this way the re-entrant areas are unequal and in the larger, to the south-west, additional accommodation has been contrived by the addition of a semi-circular wing off the side of the longer "flange." This pleasant geometrical shape admits an angle of light into the inner corners of the "web," while adding to the premises a valuable addition of floor space.

The building comprises at present a ground and lower ground floor and four storeys above. On the street frontage the entrance hall is flanked by the reception office on the right, a pleasant and spacious room, and by the X-ray department on the left. Below are the kitchens and mortuary, and above, on the first floor, dual operating units. On the lower ground floor across the rear wing is the sisters' and charge nurses' dining-room, and the connecting block between the two wings is occupied by staircase, lifts and administrative rooms on all floors. The remainder of the building is substantially occupied by private wards.

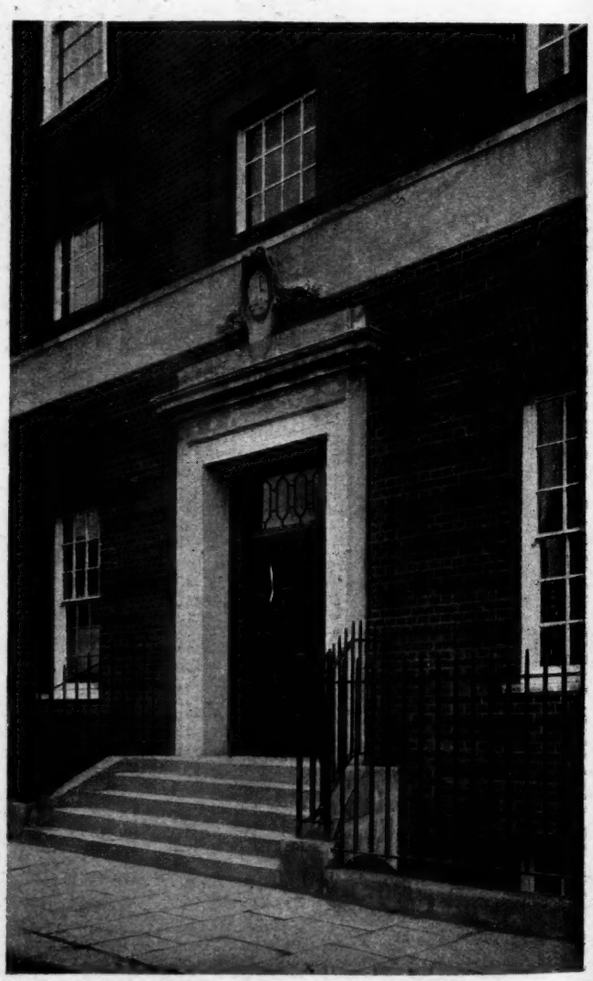
The skill with which the staircase and lifts have been planned within an irregular space is specially worthy of note, and the feeling of order and direct access which pervades the building is a token of able planning. With little knowledge of hospital administration one feels instinctively that this is an establishment certain to run smoothly and with maximum efficiency.

The X-ray department is equipped on the most modern standards, the main compartment being entirely sheathed in lead buried in the finishing materials, including the wood-faced doors and their fastenings. The dark room is 100 per cent. efficient, the door itself being sealed with a draught-excluder operating from the rebate to exclude the light. The changing rooms are divided by a sliding partition to accommodate a bed case when necessary. The apparatus generally is of the most complete description, the technicalities of which will interest those of the medical profession who are privileged to visit or work in these surroundings.

The operating units are equally well planned and equipped, and comprise a spacious lobby, from which open the two anæsthetic rooms, opening again to the operating theatres, with their sterilising, robing and store annexes, and discharging again into the lobby, which in turn connects with the main corridor and bed lifts.



LAY-OUT PLAN, SHOWING ADDITIONS.



MAIN ENTRANCE TO PRIVATE PATIENTS' WING

The lighting, screening and furnishing of the theatres are all excellently done, and the operating table itself is almost uncanny in its variety of manipulation. A point of interest in the light of recent experience is the provision of metal strips in the Terrazzo floor paving, for the purpose of dispersing "static" charges of electricity which have been found to build up in the metal equipment of the modern operating theatre to an extent sufficient to give a perceptible discharge to the touch.

The equipment of the ward kitchens, sisters' stores, nurses' rooms, baths, lavatories and sluice rooms is also thoughtful and in line with modern standards.

The private wards themselves are well conceived in their simple and direct layout and excellent equipment. Each room has its fitted wash-basin, wardrobe, bed-table and convertible fitting to serve as a writing-table, dressing-table and chest. Each room has also its plug for wireless, heating, treatment and light, and a call system operating light and buzzer which continue their warning in the nurses' duty room until disconnected within the patients' room, thus ensuring individual attention and the absence of noisy bells. The furnishings and finishings are either in oak or mahogany, and there is a pleasant air of friendly comfort and cheerfulness which is not always associated with either a hospital or a nursing home.

The children's rooms are quite delightful, with their miniature furniture and bright decorative scheme.

The planning and equipment of the main kitchens on the lower ground floor are admirable, alike in finish and quality as in the progressive arrangement of the various parts. The cooking is by gas, ventilated by hoods and ducts into a main vent shaft. The refrigerator is lined with white metallic plates, which are practically undamagable and overcome the problem of a clean and practical lining in these difficult conditions.

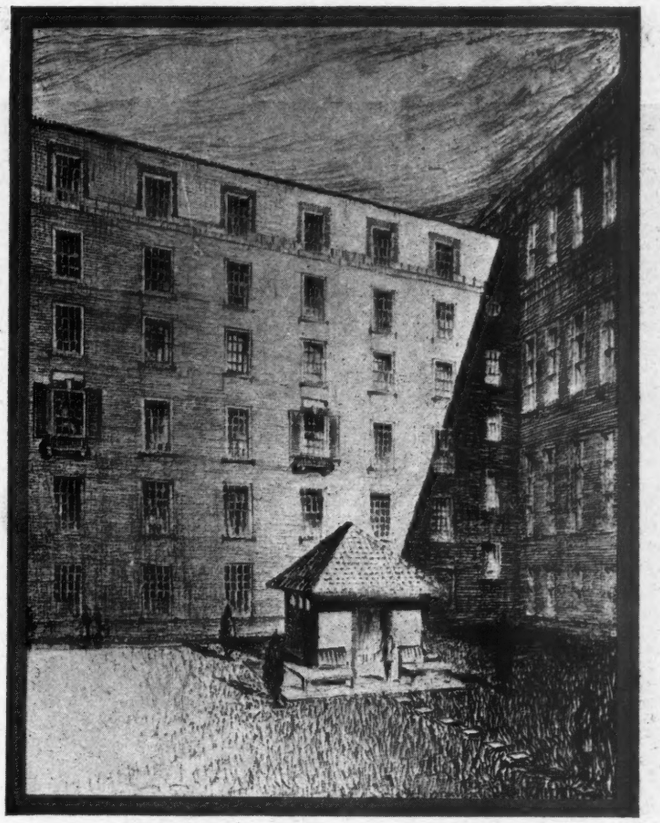
Internal telephones communicate from the main kitchen to each floor kitchen, but there is no such communication from one floor kitchen to another.

The large dining-room towards the inner court is also effective in its refined and cheerful treatment, and is for the use of the sisters from the main hospital in addition to the charge nurses of this block. It connects conveniently with the link corridor from the hospital, with the main stairs of this block, and with the kitchens on the same floor.

To this inadequate description of a fine building may be added a brief note as to the high quality of workmanship evident throughout the building, and to the careful selection of materials at once practical in use and effective to the eye. Joinery, flush doors, wood blocks, terrazzo paving, paving tiles, and, in fact, all the component parts of the building, are of a high grade consistently carried through to the smallest detail. That these modern results can be produced without any ostentatious break with tradition is a pointer towards sound twentieth-century architecture.

THE LEWIS CARROLL MEMORIAL WARD FOR CHILDREN.

Concurrently with the recent additions to the hospital, but as quite a distinct effort, is the Lewis Carroll Memorial Ward within the main hospital. It was a happy thought to commemorate the centenary of the birth of the creator of "Alice," whose adventures have delighted countless children, by this delightful children's ward, in which many little folk will forget their physical troubles in cheerful and beautiful surroundings.



GENERAL VIEW OF PRIVATE PATIENTS' WING, FROM COURTYARD.

The ward has been reconstructed within the shell of the existing building. The transformation is complete, even the balcony being enclosed with wide sun windows and clean bright walls. To carry out this work, the whole of the balcony framework below has been strengthened, an expense more than justified by the happiest of results.

The windows thus become well-proportioned openings leading on to the enclosed balcony, and the beds stand in pairs against the wall spaces between the openings. Over each pair of beds are panels in low relief executed in glazed majolica in bright colours, the subjects being scenes from "Alice" and other of Lewis Carroll's works. They are each admirably composed and satisfying in a purely decorative sense, while being also representational and appealing to young and old. Mr. F. V. Blundstone, F.R.B.S., was the sculptor.

The mass effect of well-disposed colour gives a delightful tone to the room, as remote from the old-time hospital atmosphere as can well be imagined, and yet efficient in every respect.

In the centre of the ward is an octagonal compartment enclosed in glass, where the sister or nurse in charge has complete supervision over the ward. The compartment mounts up and connects with the ceiling, and though it interrupts a spacious vista it provides a point of interest and reduces the scale of the room to more intimate proportions.

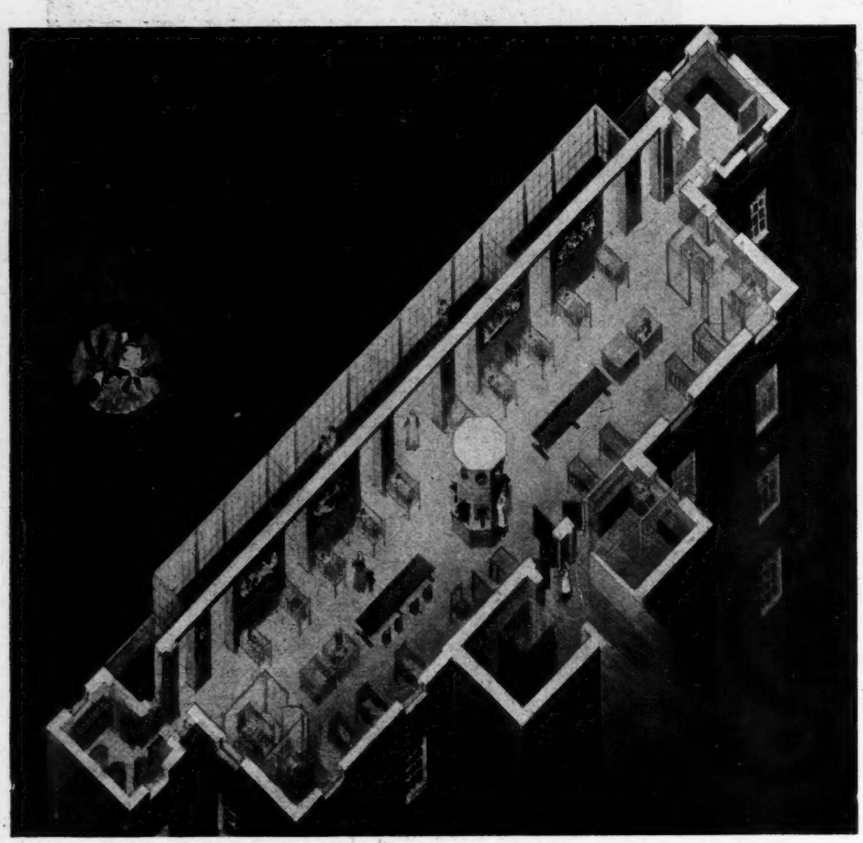
At either end is a pair of glass-enclosed isolation beds, from which the little inmates may share the cheerfulness and colour of the ward. Adjoining the ward are bathrooms, lavatories, sluice rooms and stores, etc., all equipped in the most up-to-date manner.

This transformation of an interior is a most successful piece of work, and the visitor is in no way aware of the restrictions of form and spacing which such a job imposes upon the planner. It is further a valuable addition to the equipment of the hospital, and it is likely that St. Mary's will be sought after by parents as a place where sick children can receive the best treatment under the most encouraging conditions. Sir Edwin Cooper is to be congratulated on so successfully grappling with a task that must have been full of difficulties. G. M. A.

The general contractors were Messrs. John Mowlem and Co., Ltd., of Ebury Bridge-road, S.W.1, and the sub-contractors were:—Joseph Avery and Co., blinds; The Acme Flooring and Paving Co. (1904), Ltd., wood block floors; Art Pavements and Decorations, Ltd., Prestile paving; Allensor, Ltd., joinery; Associated Asphalte Co., Ltd., asphalte; Chubb and Sons' Lock and Safe Co., Ltd., safe door; Carter and Co. (London), Ltd., tiling; Central Perivale, Ltd., flush doors; DeJong and Co., Ltd., fibrous plaster; Express Lift Co., Ltd., lifts; H. C. Fehr, modelling sculpture; Galsworthy, Ltd., metalwork; J. W. Gray and Son, Ltd., lightning conductor; James Gibbons, Ltd., ironmongery; Granwood Flooring Co., Granwood flooring; W. H. Heywood and Co., Ltd., roof lights; Higgins and Cattle, Ltd., electrical work; The Inlaid Ruboleum Tile Co., Ltd., linoleum; Luxfer, Ltd., fire-resisting glazing; Leyland and Birmingham Rubber Co., Ltd., rubber flooring; Mumford, Bailey and Preston, Ltd., heating, hot-water and plumbing; Geo. Rome and Co. (London), Ltd., plastering; Redpath, Brown and Co., Ltd., constructional steelwork; William Smith, metal casements; Scaffolding (Great Britain), Ltd., tubular scaffolding; and Webber and Corbin, Ltd., stonework.

EXTENSIONS AT ST. MARY'S HOSPITAL, PADDINGTON, W.

SIR EDWIN COOPER, R.A., ARCHITECT.



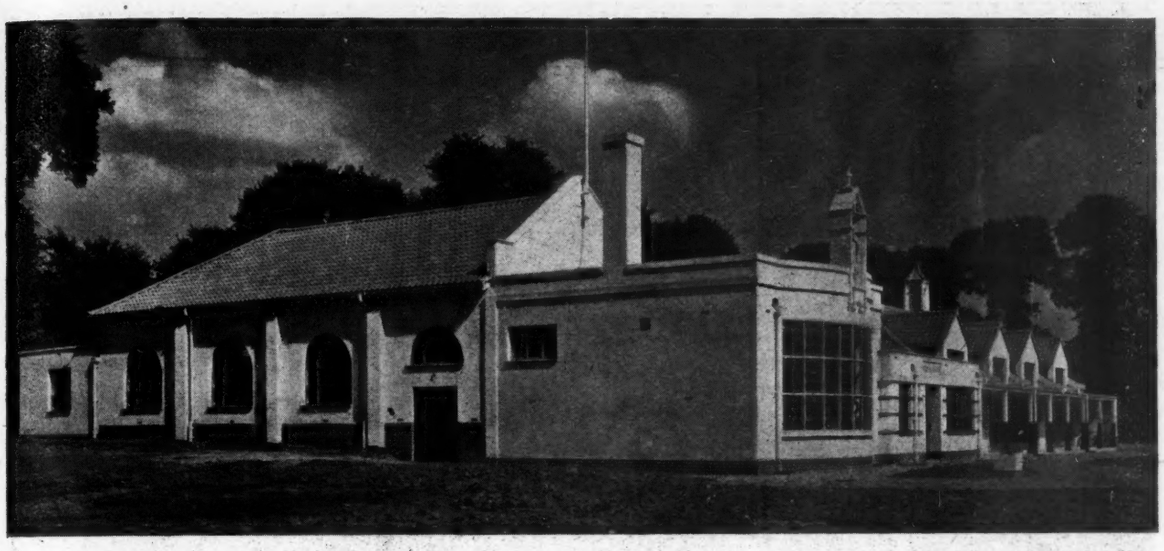
AN ISOMETRIC VIEW OF THE WARD

LEWIS CARROLL MEMORIAL WARD.

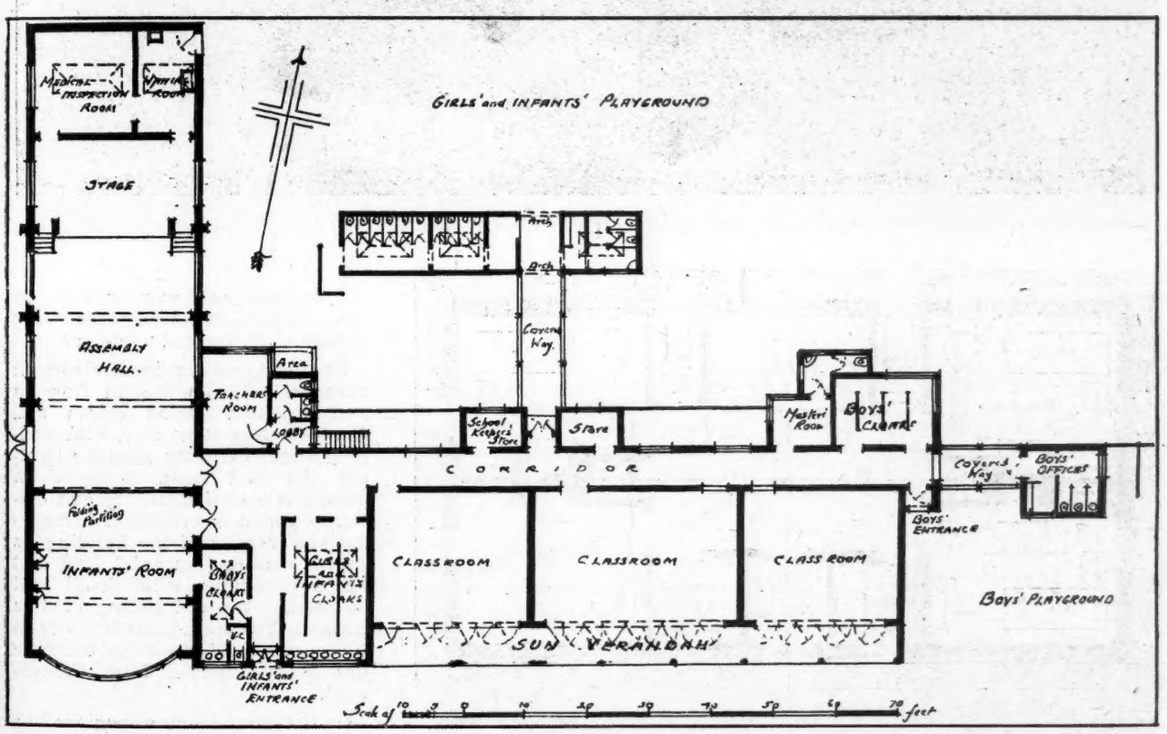
A GENERAL VIEW.

A JUNIOR MIXED ELEMENTARY SCHOOL, RUISLIP.

MR. BERNARD J. McADAM, ARCHITECT.



GENERAL VIEW



THE PLAN.

THIS building, which has accommodation for 170 scholars, comprises three classrooms (one of which is adapted for practical work), a large infants' room, an assembly hall with stage, staff rooms, medical inspection room, and stores. Separate cloakrooms are provided for infants, girls and boys.

The classrooms are of the "open-air" type, the south-east wall being composed entirely of french casement windows which open on to a covered sun veranda. The infants' room (where the former arrangement was not considered desirable) is lighted by a large curved, reinforced concrete window 20 ft. by 9 ft. 6 in. high, also facing south-east. All the classrooms have windows high up in the back walls to give additional light and cross-ventilation, and are also provided with ventilating panels in the ceilings which communicate with a ventilating turret in the roof, this being a feature of the exterior elevation. The infants' room is separated from the assembly hall by a sound-proofed folding partition. When this is folded back, a hall for entertainment purposes, with a length of 84 ft., including the stage, is provided. The assembly hall and classrooms are floored with Canadian birch blocks, the cloakrooms with terrazzo, and the corridors with "Granwood" flooring. The hall and infants' room have a dado of Masonite "Prestwood" left in natural colour.

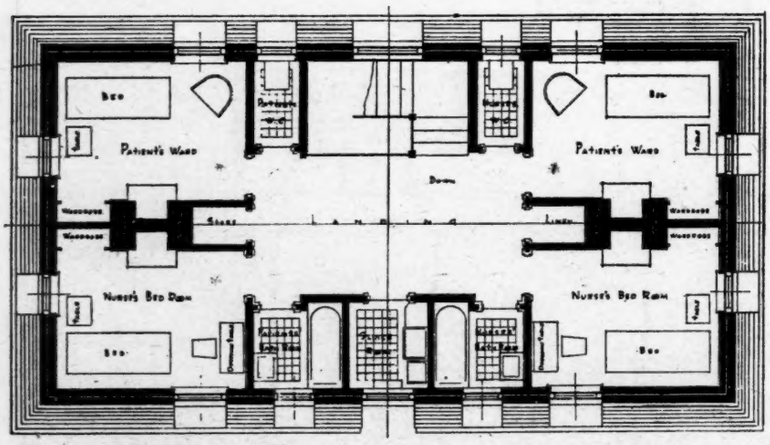
The external elevations, above a plinth of Staffordshire blue bricks, are faced with "Atlas White" stucco, with bands of glazed tiling, introduced sparingly, to give a note of colour. The sloping roofs are covered with red Sterenberg pantiles.

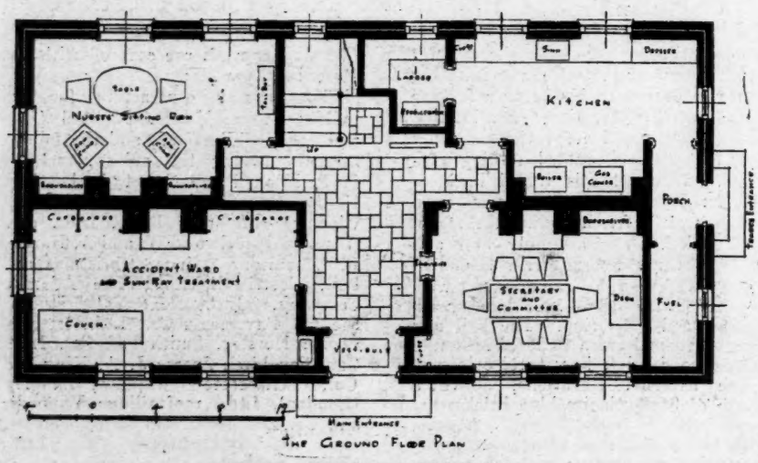
The general contractors for the building were Messrs. Richard Ginn and Sons, of Hertford, and the following are among the sub-contractors: C. P. Kinnell and Co., Ltd., heating; Henry Hope and Sons, Ltd., steel windows; Measures Bros., Ltd., constructional steelwork; T. and A. Harris, Ltd., sanitary fittings; Christmas and Hill, electric lighting; The Adamite Company, Ltd., external stucco; the Art Pavements Co., Ltd., terrazzo floors; Horsley, Smith and Co., Ltd., Canadian birch floors; J. A. King and Co., "Glascrete" window; Langley (London), Ltd., roof tiling; Yannedis and Co., Ltd., locks and door furniture, and the Synchronome Co., Ltd., electric clocks.

COTTAGE HOSPITAL, ALBERT ROAD, BURNHAM-ON-CROUCH.

MR. E. P. W. COOPER, M.A. (CANTAB.), ARCHITECT.

THE MAIN FRONT, TO ALBERT ROAD.





GROUND- AND FIRST-FLOOR PLANS.

This building stands on a site at the corner of Albert-road and Crouch-road, Burnham-on-Crouch.

The quiet exterior in the Georgian manner, with its ground floor in multi-coloured facing bricks and the pleasantly steep roof, with well-proportioned dormer windows lighting the first floor, presents an atmosphere of domesticity and efficiency which is evidenced throughout the interior of the building by simple planning on axial lines and by an intimacy with detail and equipment for a building of this nature. The main entrance is from Albert-road and a service entrance has been arranged from Crouch-road.

On the ground floor a spacious hall admits on the right to the administrative offices, with secretary's and committee rooms, and on the left to the ward for the treatment of casualty and sun-ray cases. There are also an efficiently planned kitchen and comfortable sitting-rooms for the staff.

The first floor provides acccommodation for the nurses and two private wards, with bathrooms, lavatories, and sluice-room. All this accommodation is approached directly from the central landing, and the absence of corridors and waste space is notable, while the finishings are hygienic and the equipment, including wireless installation, is of the most up-to-date. The building was erected by Messrs. J. E. Smith and Sons, of Burnham-on-Crouch.

THE RECONSTRUCTION OF "LYDHURST," WARNINGLID, SUSSEX.

MR. L. KEIR HETT, F.R.I.B.A. (SEARLE AND SEARLE), ARCHITECT.

THE MANSION AS RECONSTRUCTED.

BEFORE RECONSTRUCTION.

THE RECONSTRUCTION OF "LYDHURST," WARNINGLID, SUSSEX.

MR. L. KEIR HETT, F.R.I.B.A. (SEARLE AND SEARLE), ARCHITECT.

THIS property is an exceptional one, with very well-laid-out grounds, especially in the disposition of trees, many of which are rare and of great antiquity. It is situated on high ground commanding very fine views of the South Downs.

The mansion, owing to its inconvenient planning, size and unfortunate Victorian appearance, had been empty for some years. The prospective new owner early in 1936 called in his architects to advise on the possibilities of an entire reconstruction of the house. Plans were prepared which determined the purchase of the property.

A start was made on the demolition of a large area of the old mansion, retaining such of the reception-rooms as were required for incorporation in the reconstruction. The style adopted was of a Georgian character.

Owing to the various projections on the walls of excrescences, turrets, etc. — partially covered with weather-tiling of a very dull description — the walls first had to be straightened out.

Economy demanded that the rough walls must be faced up with plaster. The cost of refacing with brickwork ruled this expedient out of the question. Owing to the high pitch of the old first-floor ceilings these were lowered and a new tiled roof constructed.

The main entrance was moved from the east to the north side of the house, necessitating certain alterations to the ground plan of the old part of the house. A partition wall was added off the drawing-room to form the smoking-room, and circular bays added to the drawing- and dining-rooms.

All the chief rooms face the fine view of the South Downs, and the wide corridor and spacious staircases, although altered in detail, remain a feature of the house. The old basement remains, part of which is used to accommodate the new oil boiler installation.

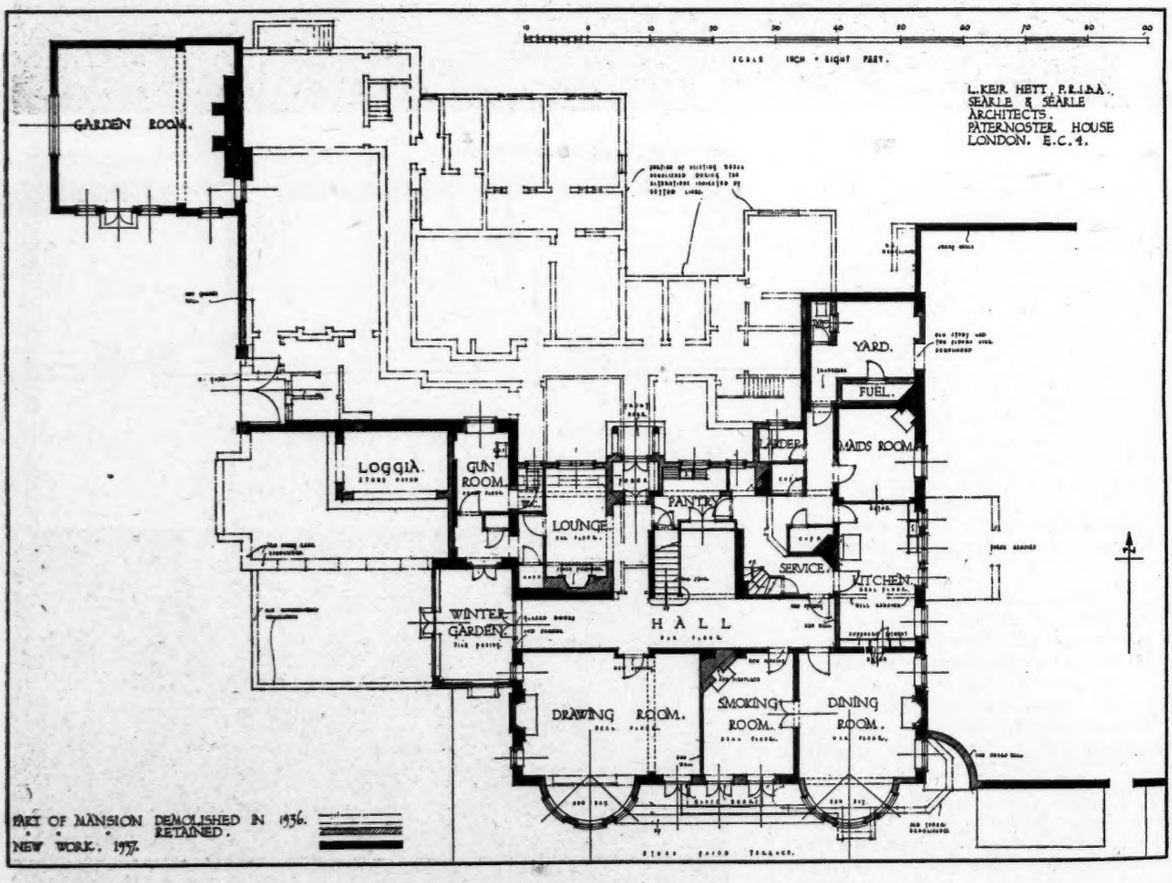
The ground-floor plan given shows the reconstructed house as it now stands; the walls of the original part, now demolished, are indicated.

Accommodation provided on the first floor consists of five large bedrooms, two dressing-rooms and two bathrooms, and on the second floor five good bedrooms and a bathroom.

The outside appearance is illustrated by two photographs, one of the house as it was, taken from the south-east, and the other shows the house as reconstructed, taken from the same position. These views, which are given on the previous page, show the remarkable change which has been effected.

The architect for the reconstruction was Mr. L. Keir Hett, F.R.I.B.A., of Messrs. Searle and Searle, and the general contractors were Messrs. E. H. Munnion, Ltd., of Ardingly, Sussex.

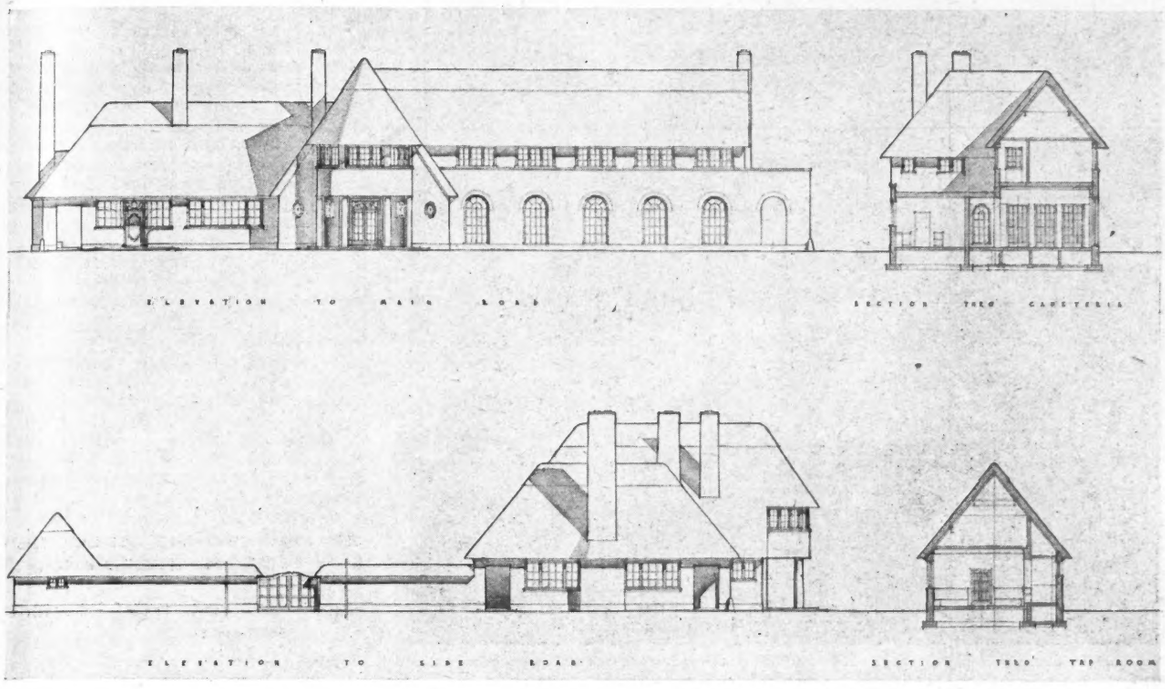
Contractors for the demolition were Messrs. Frederick Wise, Ltd., and the oil boiler was installed by Messrs. G. C. Pillinger and Co., Ltd.; the hot water and heating engineers were Messrs. R. W. Steele and Co., and the roofing tiles were supplied by the Sussex Brick and Tileries Co., Ltd. The internal wall tiling was provided by the Attoc Block Co.



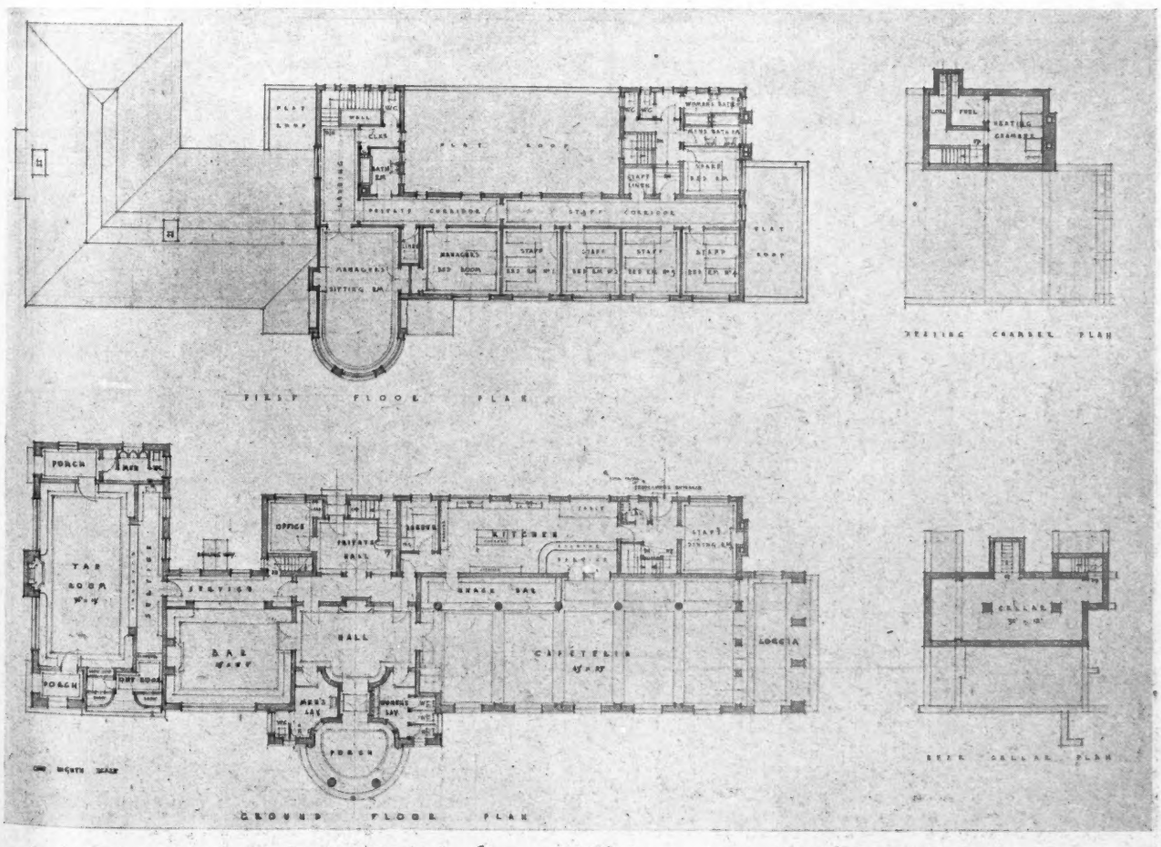
GROUND-FLOOR PLAN, SHOWING OLD AND NEW WORK.

"A VILLAGE INN": AN R.I.B.A. FINAL PROBLEM IN DESIGN.

BY MR. IVAN WILLIAMS.

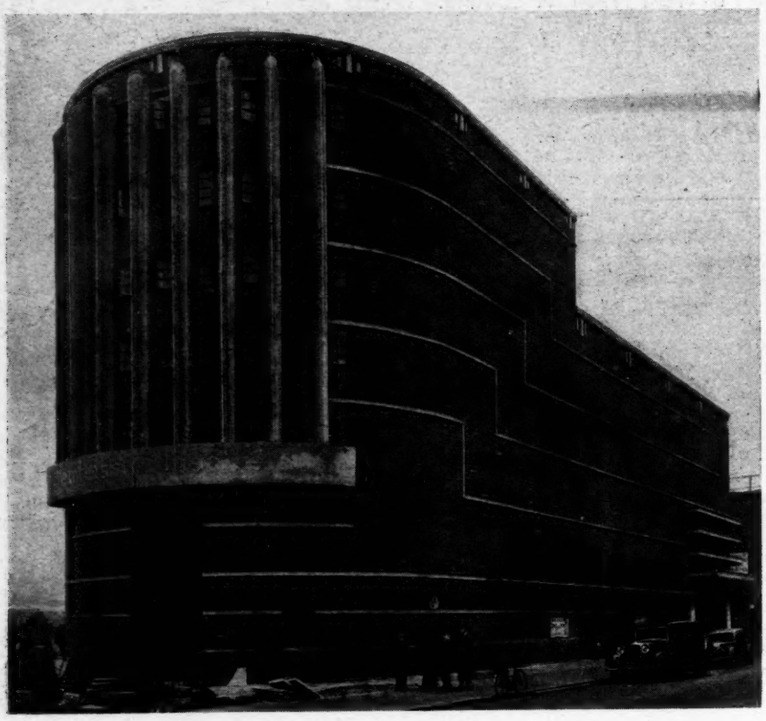


ELEVATIONS AND SECTIONS.



PLANS.

THE "EMBASSY": A NEW THEATRE AT PETERBOROUGH.



MR. DAVID E. NYE, F.I.A.A., ARCHITECT.

LEFT VIEW SHOWING SCENERY FLIES' LOFT, AND DRESSING ROOMS.

BELOW: THE MAIN FRONT, SHOWING ENTRANCE.

THE "EMBASSY": A NEW THEATRE AT PETERBOROUGH.

MR DAVID E. NYE, F.I.A.A., ARCHITECT.

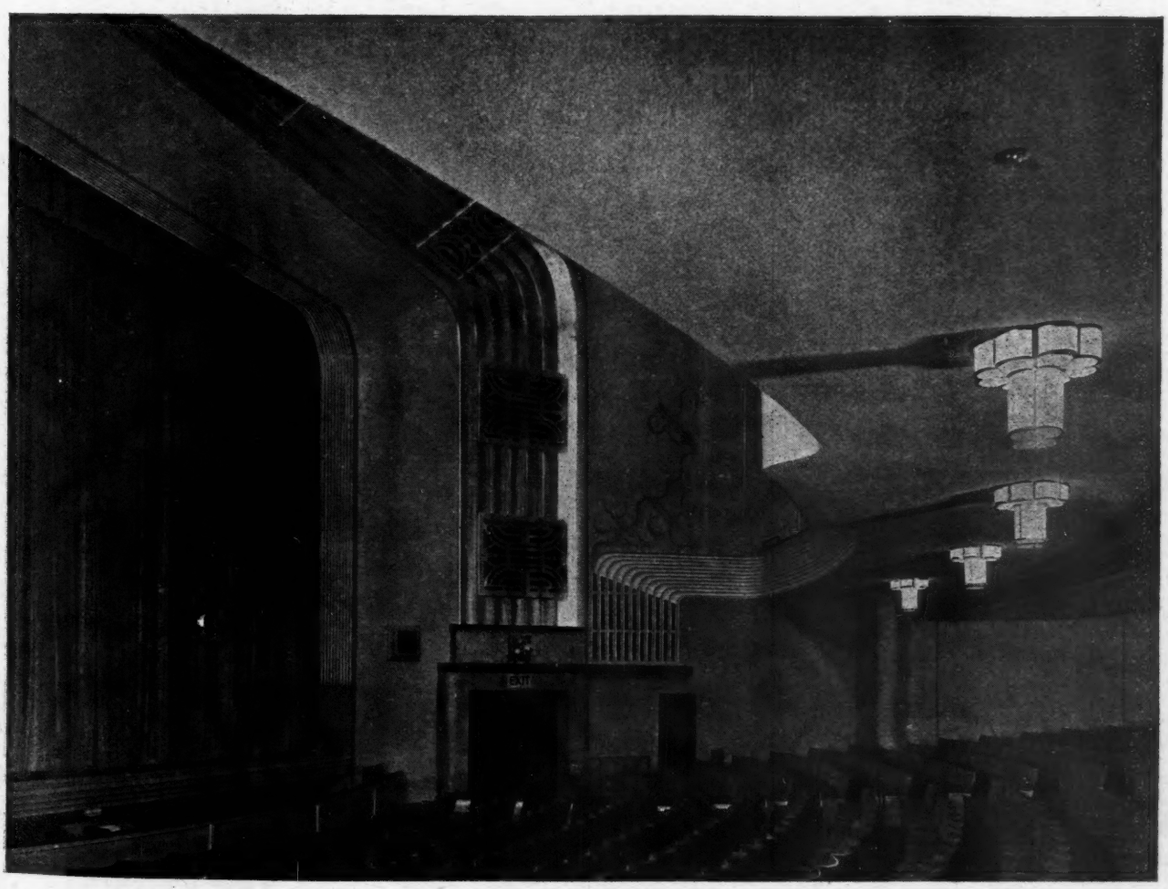
CIRCLE FOYER.

In order to harmonise with its environs the theatre has been built of local Fletton bricks, of which nearly one million have been used. Stone has been used by the architect to emphasise the main lines of the plan. In order to plan the greatest number of seats and at the same time make provision for the most modern of stages, it was found necessary to site the stage and dressing-rooms with its fly galleries at the circular end of the site, and, instead of attempting to disguise the usually ugly scenery flies' loft, the architect has incorporated this into his design of the elevations.

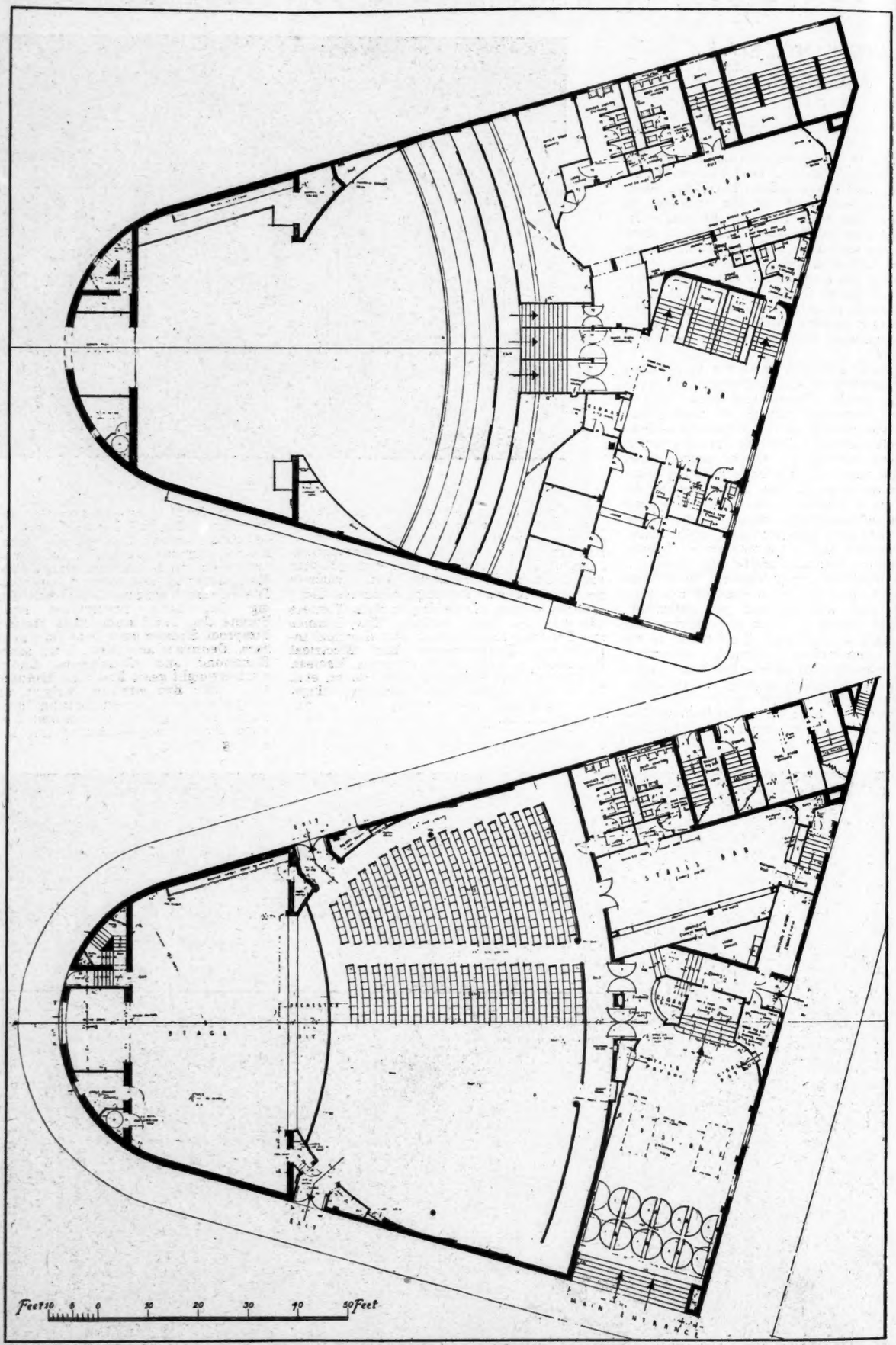
The main entrance, with its three-tiered canopy advertising the programmes, is opposite the public library and opens into a spacious vestibule paved in multi-colour marble and containing the various box-offices and cloaks counter. Concealed heating panels have been incorporated in the marble floor. The wide main staircase leads from the vestibule to the large balcony foyer, opening off which are a spacious café, public telephone and the administrative offices. Three large lounge bars have been provided, in the stalls, in the balcony and in the rear circle. Special attention has been paid to the sight lines.

The decorations and lighting have been designed to give a sense of comfort and restfulness; they are gay and yet restrained. Trunking concealed behind the ceilings and in the walls delivers washed air raised to the correct temperature through decorative grilles to every part of the building. Automatically fired boilers situated in the basement provide heat to huge copper "boosters" which warm the air after it has been washed and filtered in the plenum chamber situated on the mezzanine floor.

The general contractors were the Demolition and Construction Co., and sub-contractors were: Interior decorations, W. J. Brooker, Ltd.; heating and ventilation, Jeffreys, Ltd.; structural steelwork, Powers and Deane's, D. Ransome, Ltd.; concrete floors and balcony steppings, Concrete, Ltd.; asbestos roofing and felting to flats, Turners Asbestos Co., Ltd.; asphalt, The Limmer and Trinidad Lake Asphalt Co.; electrical installation, Requirements and Electrical Engineering, Ltd.; metal windows, Maclean and Co. (Metal Windows), Ltd.; doors, etc., Travis and Arnold, Ltd.; sanitary fittings, John Bolding, Ltd.; metal lathing and bracketing, M. and E. Equipments, Ltd.; fibrous plaster, The Plaster Decoration Co.; iron ladders, gangways, etc., Sebreys Architectural Ironworks; ironmongery and door furniture, Taylor, Pearse, Ltd.; canopy, decorative ironwork, handrails, etc., G. C. Harris; terrazzo, Jaconello, Ltd.; stage and projection room lantern lights, The Hall Manufacturing Co.; vacuum cleaning plant, The British Vacuum Cleaner and Engineering Co., Ltd.; fire-fighting equipment, Pyrene Co., Ltd.; scene dock shutters, The Fireproof Shutter and Door Co.; shutters to bars, Dennison and Kett, Ltd.; service lift, Hammond and Champness, Ltd.; stage counterweight gear, The Hall Manufacturing Co., Ltd.; fire curtain, Knight and Co. (Engineers), Ltd.; neon lighting, etc., E.S.S. Signs, Ltd.; lighting fittings and decorative glass, Pride; carpets, Hamptons, Ltd., and seating, Pixton.



GENERAL VIEW OF AUDITORIUM.



STALLS AND CIRCLE-FLOOR PLANS.

THE "EMBASSY" THEATRE, PETERBOROUGH.

MR. DAVID E. NYE, F.I.A.A., ARCHITECT.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THE PREVENTION OF NOISE IN BUILDINGS.

THIS subject was reviewed by Mr. C. J. Morreau, M.A. (Cantab.), A.R.I.B.A., in a paper read before the R.I.B.A. on Monday evening. The chair was occupied by Mr. Darcy Braddell, Vice-President, in the absence through illness of Mr. H. S. Goodhart-Rendel, the President.

It is my object (commenced Mr. Morreau) to review all methods by which the architect may prevent noise from being a nuisance in the buildings which he erects. One of these methods is to construct the building in such a way that as little sound as possible is transmitted from one part to another. This is the problem on which research workers are engaged and forms the subject of the major part of this paper. I should like to make it clear at the outset, however, that I am in no position to describe to you any completely "sound-proof" method of construction; nor to reveal the secret of that much sought-after material whose application in ½-in. thicknesses overcomes all the problems of sound transmission. Scientists will be the first to admit that there is still scope for a great deal of research, and all I can do is to outline the present state of knowledge of this subject and to describe some constructional principles which make for effective insulation, as well as some which do not.

The problem of transmission of sound is a highly complex one, for there are many kinds of sound and many alternative paths by which they may travel, all of which are interrelated. In order to simplify discussion, I propose, for the purpose of this paper, to divide sound into three classes: Air-borne sounds, which originate as sound waves in air—*e.g.*, speech, violin music, wireless; impact or contact sounds, which originate as the result either of a blow on some part of the structure—*e.g.*, footsteps—or by some other contact between an object and the structure—*e.g.*, scraping of chairs; and equipment sounds, which, obviously, originate from one of the many forms of noise-producing equipment which are included in the modern building. This division refers only to the origin of the sound, for, no matter what its origin, sound nearly always reaches the ear by air.

Air-Borne Sounds.

Air-borne sound will continue to travel without great diminution in intensity so long as it has a continuous air path to follow. Open windows, cracks between floor-boards, cracks round ill-fitting doors are all paths which sound follows readily, so that the first necessity in preventing transmission must be to seal all air paths.

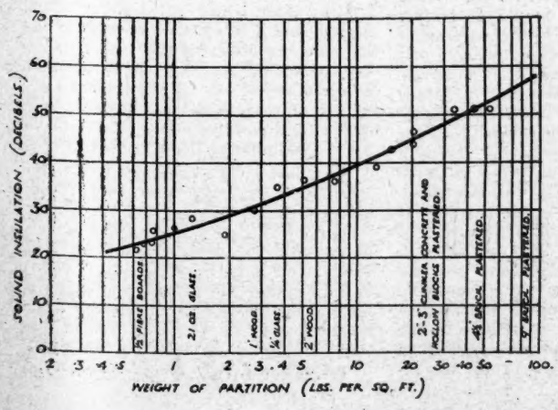
Of the problems relating to air-borne sound, the most common is how to prevent speech and music from being audible in a neighbouring room. Assuming that there is no free air link between the rooms, the readiest path for the sound is by way of the dividing wall or floor, and the capacity of a wall or floor to resist air-borne sound is one of its important properties. Single walls insulate by virtue of their weight and of their weight alone, the heavier the wall the better being the insulation provided. This is now a familiar fact, but it is worth while examining a little more closely the actual relationship between weight and insulation. This is shown in Fig. 1, in which the insulation afforded by single walls of all kinds of materials (the insulation is measured in "decibels") is plotted against the logarithm of the weight per sq. ft. of the wall; all the points lying very close to a curve which is approximately a straight line. From this we see that no property of the material of which a single wall is constructed is of significance except its weight, and this applies not only to solid walls, but also to walls built of hollow blocks. The relationship suggests that you should regard with caution those advertisements which claim that a material is "heat and sound insulating." Heat-insulating materials are usually porous and light in weight, whereas for sound-insulation we see that lightness is a disadvantage, so that the two properties are seldom compatible.

Now, although Fig. 1 shows clearly that increased insulation against the direct transmission of air-borne sound is obtained by increased weight, there are two points which need to be emphasised. Firstly, differences of less than about five decibels are of little importance in practice; and, secondly, uniform increase in insulation results with uniform increases in the logarithm of the weight and not in the actual weight —*i.e.*, it is necessary to double the weight each time to get a corresponding increase. Thus, if you are doubtful under a particular set of conditions of the efficacy of a wall giving a reduction of 45 db., it is of no use substituting one giving 47 db.; the next best wall in practice is one that gives 50 db. It will be seen that this useful 5 db. difference is obtainable without undue increase in total weight in the case of light partitions (*e.g.*, glazed or wood-panelled partitions), but that in the case of the heavier solid walls it is very difficult to obtain except by very large increases in weight. You are familiar with the incapacity of the ordinary 9-in. party wall to exclude the noise of a loud wireless set from the neighbouring house or flat, but, since the next best solid wall is an 18-in. wall, it is evident that as long as we have loud wireless sets to deal with, it is going to be extremely difficult to insulate their noise completely by means of solid walls.

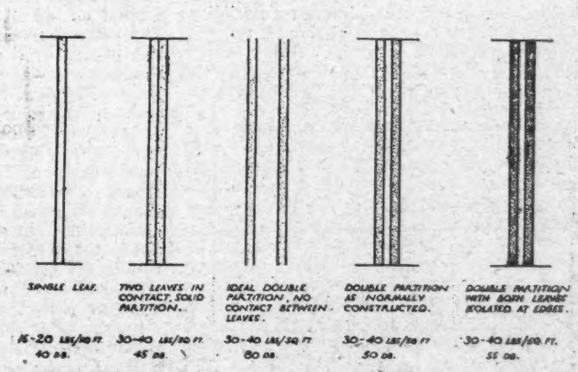
Where economy of weight is important, as it nearly always is, recourse must be made to double or complex construction. Were it possible to construct a double wall in which there were no connection at all between the two leaves, then that wall would give insulation equivalent to the sum of the insulation given by each leaf separately—that is to say, two 2-in. clinker concrete leaves would give twice 43 db.=86 db.; but in practice they do not by any means have this effect, for, even if the intervening cavity is kept quite clear, the solid contact with the surrounding structure at the edges provides a ready path for sound to pass from one leaf to the other. A double partition as ordinarily built is better than a single partition of the same total weight, but it is not very much better. Since the edge link is the weakness, it is to be expected, and it has been shown, that the sound insulation afforded by a double wall can be increased by isolating the edges of each leaf from the surrounding structure, and, indeed, full benefit from double construction is only derived if this is provided (see Fig. 2). Quite effective results have been obtained by the use of ½-in. cork-board as isolation. Admittedly, the introduction of isolating strips presents practical difficulties, more especially as they must be unbridged even by plaster to be effective, but the principle of providing discontinuity between the leaves of a double partition is an important one which has been successfully used in practice, and which is likely to grow in importance as we learn more about it.

The importance of transmission by way of the edges of double partitions appears to be greater in the case of masonry partitions than in the case of certain thin sheet materials, such as glass or metal. With double windows the edge coupling is found to be of little significance compared with the coupling across the air space, and it is the width of the air space more than any other factor which determines the insulation provided by double glazing. With a wide air space a double window approximates closely to the ideal type of double partition referred to in Fig. 2, as is indicated by the fact that two sheets of 21-oz. glass 9 in. apart afford insulation very nearly equal to that of 9-in. brickwork. This is a rather surprising result and suggests that there may be a field for the use of thin sheet materials which deserves fuller exploration.

A class of partition which is neither single nor double is the traditional wood-framed or stud partition. This type of construction appears to behave partly as a single wall by virtue of the studs which connect the two faces, but largely as a series of small double walls, and stud partitions may give very useful results. For instance, insulation approximately equal to that given by 4½-in. brickwork can be obtained by a stud partition faced both sides with lath and plaster.



LEFT: FIG. 1.



ABOVE: FIG. 2.

Unfortunately, it is impossible in a paper of this description to present exhaustive data of the relative efficiency of different constructions, but an attempt has been made to group different forms into a rough order of merit in Table I. Those of you who are interested will find much more exhaustive data in a Building Research Bulletin on this subject which is in course of preparation.

TABLE 1.

SOUND INSULATION AFFORDED BY WALLS WHERE THERE IS NO TRANSMISSION EXCEPT THROUGH THE WALLS.

Approx. Insulation db.	*Construction.*	*Approx. Weight lb./s.f.*	*Condition in Quiet Room Behind Wall.*
55	9 in. brickwork plastered	85	Ordinary conversation inaudible.
	Double 2 in. clinker concrete, edges of both leaves isolated by ½-in. cork board, plastered	33	Loud radio music and speech clearly audible.
	Plastered wallboard of wood shavings bound with cement on wood or concrete studs	20, 30	
	Double 21 oz. glass c 9 in. apart	2.5	
50	4½ in. brickwork plastered		Loud conversation audible.
	3 in. reinforced concrete	45	
	Double 2 in. clinker, no edge isolation	33	Radio music clearly audible.
	Lath and 3-coat plaster on wood studs	17	
	Double 21 oz. glass c. 4 in. apart	2.5	
45	2 in.-3 in. clinker concrete, plastered	20-30	Ordinary conversation audible.
	Hollow blocks, plastered	20-30	
	Double 21 oz. glass c. 2 in. apart	2.5	Loud radio speech intelligible.
40	Slabs of wood shavings bound with cement, plastered	15	Loud conversation intelligible.
	Unplastered fibre board on studs	5	
35	2 in. hardwood	5	Ordinary conversation intelligible.
30	1 in. hardwood	2.5	
	¼ in. glass	3.5	
20-25	½ in. fibre board	0.7	
	21 oz. glass	1.3	

The considerations of weight affecting the insulation of walls apply equally to the insulation against air-borne sound provided by floors. Thus the lighter, hollow types of reinforced concrete floors are actually rather less effective from our present point of view than the heavier, solid types. However, although the differences in weight of different types of floors covering different spans are of the greatest importance to the structural engineer, they are not of great acoustical importance, coming, as they do, on the upper part of the curve of Fig. 1. In fact, you will seldom be very far out if you assume reinforced concrete floors in general to afford insulation to air-borne sounds roughly equivalent to that afforded by 4½-in. brickwork, and it is not usually necessary to take sound-insulating properties into account when selecting a type of structural concrete floor. Timber floors are usually much lighter and a good deal less effective than concrete floors, but as they fall nearer the lower part of the curve of Fig. 1, useful improvement can be obtained by reasonable increases in weight. There is no doubt that the old practice of pugging with lime or clinker concrete was worth while from an acoustical point of view, but there is grave doubt whether any useful purpose is served by the modern counterpart of using light fillings, such as slag wool, or by the frequently advocated provision of a layer of fibre-board or quilt, the boards and ceilings remaining rigidly fixed to the joists.

As in the case of walls the direct transmission of air-borne sound through floors can be reduced by introducing discontinuities in the construction, but as these steps are similar to those which must be taken to reduce the transmission of impact sounds it will be better to leave their consideration until later.

Before closing our discussion of transmission of sound which is originally air-borne, there is one consideration of great importance which must not be overlooked, though unfortunately little is yet known about it. We have been talking about the transmission of sound directly "through" a wall, and by this we actually mean that the air waves on one side which are our original sound set the whole wall into vibration, these vibrations setting up fresh air waves on the other side which constitute the transmitted sound. If we consider an arrangement of four rooms as in Fig. 3, with a sound source in room 1, then sound is transmitted to room 2 by the vibrations in the wall AO and to room 4 by vibrations in the wall DO. But the vibrations in the wall DO are not confined to the length DO; they continue along OB, the vibrations in the section OB setting up sound waves in rooms 2 and 3. Thus transmission "through" AO is not the only way in which sound passes from room 1 to room 2, transmission along DB and all other common walls and floors also playing a part. Unfortunately no definite information is yet available as to the comparative "amounts" of sound which travel across and along two similarly constructed walls, and although it is likely that the transverse path is usually the more important, the longitudinal path can certainly not be neglected, so that it is useless to provide a highly insulating dividing wall between two rooms unless the common longitudinal walls are of comparable construction, or unless appropriate insulation or discontinuity is provided in the longitudinal path.

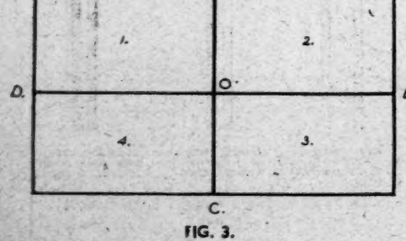


FIG. 3.

In this connection it should be explained that there is hardly ever any question of adding together the sounds which reach a room by different paths in order to assess the total sound transmitted. In practice it is nearly always the loudest sound only which matters and no benefit is derived from eradicating a minor noise unless the major noise is first suppressed.

Impact Sound.

The impact sound with which we are primarily concerned is the noise of footsteps. This varies tremendously according to the way in which a particular person walks and the kind of shoe which he wears, but we can only conveniently compare different forms of construction under similar impacts and the comparisons which will be given refer to the impact of an "average" man's footsteps. The noise of footsteps varies also according to the nature of the floor surface trodden on; this is particularly the case as far as concerns the sound heard by the walker or other occupants of the same room. It is often desirable to suppress the noise made in the room itself, and this can usually be achieved by laying a fairly thick resilient floor covering such as carpet or soft rubber sheeting, but the reduction of the noise above is by no means always accompanied by a corresponding reduction of noise in the room below, or in other parts of the building. The more important problem with which we are faced is to prevent the noise of footsteps from being a nuisance in other parts of the building, especially in the room immediately below the walker, for in a great many cases if the footsteps are inaudible in the room below they will not be troublesome in other parts.

You are probably reasonably familiar with the noise that is set up by walking on a bare reinforced concrete slab, and this is usually equally loud in the rooms above and below the floor. It is convenient to take this as a reference level of loudness, and you will, I think, agree at once that we may classify such a floor as "noisy." There is no great difference, and certainly no difference of practical importance, in the "noisiness" under impact of different reinforced concrete floors, be they thick or thin, solid or hollow, precast or laid in situ, so long as they are of a type which provides a rigid connection between the upper and lower surfaces. We may, therefore, group together all reinforced concrete floors into a category of "noisy" floors. The problem is how to render them less noisy to the occupants of a room beneath. The simplest expedient would be to provide a suitable floor finish applied direct to the concrete, but whatever effect such finishes may have upstairs they are generally disappointing to the listener below. Linoleum in all ordinary thicknesses, cork tiles, thin carpets and even rubber sheeting do not make sufficient difference to take the floor out of the category of "noisy." Thick pile carpets on underfelt and sponge-backed rubber flooring are more effective, particularly in deadening the tap of a hard-heeled shoe, though they do not always greatly reduce the noise of dull, heavy thuds. Terrazzo, granolithic and magnesite finishes, of course, contribute nothing, nor do layers of loose, but rigid, fillings such as sand, clinker, pumice, etc., nor do wood blocks or wood boards nailed to battens fixed rigidly to the concrete. Relief seems to be obtainable only by providing some sort of independent finish isolated by resilient supports from the structural floor. Wood boards and battens supported on rubber pads or on strips or layers of resilient blanket such as eelgrass or glass silk, or held in one of the proprietary clips incorporating insulation, provide a noticeable improvement over a bare floor, and concrete floors with such finishes might be raised to a category of "fairly noisy." Better results are obtained if the "floating" finish is of concrete, and this may, with effect, be supported either on rubber pads or on layers of suitably resilient blanket of adequate thickness. If possible, the concrete slab should not be thinner than 2 in., and if rubber pads are used as supports the space between structural and floating slabs should not be less than 1 in. Floating floors of 2 in. or thicker concrete on rubber pads or on glass silk or eelgrass blanket not thinner than 1 in. will not render footsteps inaudible in a very quiet room below, but these forms of construction can certainly be classed as "quiet" floors.

Another method of reducing transmission of the noise of footsteps to the room below is to provide a false ceiling, either completely independent of the structural floor, which is usually difficult, or suspended from the floor in clips, preferably introducing a resilient isolating material in some form. The difficulty here is that unless special measures are taken to insulate effectively the walls and partitions from the structural floor the sound of the impact on the floor is likely to travel down the walls. In principle, therefore, the floating floor which cuts off the sound at its source before it enters any part of the structure is more desirable than the suspended ceiling, which can at best only protect the room in which it is fixed. Nevertheless a suspended ceiling of reasonable weight (equivalent, say, to lath and plaster) may at times be very useful in combination with a floating floor.

The above remarks apply to treatments of concrete floors, the bare floor itself having been classed as "noisy," but an ordinary wood joist floor is a good deal noisier under impact (I am still considering the effect in the room below) and must be classed as "very noisy." We have said that a heavy pugging makes a useful contribution to insulation against air-borne sound; it is useful also in quietening the floor under impacts, but only just brings it out of the "very noisy" category. Light

puggings, layers of quilt draped over the joists, fibre-board ceilings, plastered or unplastered, are no help, and here again discontinuity is necessary to obtain useful improvement. If the boards are nailed to battens instead of direct to the joists, a floating floor is formed which may be isolated from the joists, and which in small rooms is adequately held in place by the skirtings. Such a construction using rubber pads or thick resilient blanket as isolation certainly improves conditions beneath a wooden floor, but even if used in conjunction with heavy pugging the floor barely qualifies for the "fairly noisy" class to which reference has been made. It is very difficult to render a wooden floor quiet.

An attempt has been made in Table II to group together different floor constructions

TABLE II.

ROUGH CLASSIFICATION OF FLOORS.

Very Noisy Floors.	1	Wood joists and plastered ceiling, boards nailed to joists, with or without linoleum covering.
	2	As 1, but with light pugging (*e.g.* slag wool, granulated cork), between joists.
	3	As 1, but with fibre board or quilt laid over joists.
Noisy Floors.	4	As 1, but with heavy pugging (*e.g.*, ashes, clinker).
	5	As 1, no pugging, boards nailed to battens resting on thick eelgrass or glass silk blanket laid over joists.
	6	Reinforced concrete floor with or without linoleum.
	7	Reinforced concrete floor with any hard finish (*e.g.*, terrazzo, tiles magnesite composition, asphalte, wood blocks), with or without rigid filling (*e.g.*, sand, clinker) between structural floor and screed.
	8	Reinforced concrete floor with boards and battens held rigidly to the concrete.
Fairly Noisy Floors.	9	Wood joists and plastered ceiling, heavy pugging, boards nailed to battens resting on thick eelgrass or glass silk blanket.
	10	As 1, with or without heavy pugging, pile carpet on thick underfelt.
	11	Reinforced concrete floor, pile carpet on underfelt.
	12	Reinforced concrete floor, boards and battens resting on fibre board, thick felt or rubber pads, or held in special clips incorporating resilient material.
	13	Reinforced concrete floor, boards and battens resting on slag wool, eelgrass or glass silk blanket.
	14	Reinforced concrete floor, 1 in. layer of granulated cork, 2 in. concrete screed.
Quiet Floors.	15	Reinforced concrete floor, 2 in. concrete screed on rubber pads, eelgrass or glass silk blanket not less than 1 in. thick.
	16	As 9, 12, 13 or 14, with the addition of pile carpet on underfelt.
Very Quiet Floors.	17	As 15 with the addition of pile carpet on underfelt.
	18	As 15 or 16 with the addition of a suspended plastered ceiling.

into five classes, but this grouping must only be taken as a rough guide. The floating finishes which improve insulation against impact noises are also beneficial against air-borne sound.

Equipment Noises.

In our discussion of air-borne and impact sounds we have accepted without question that these sounds will arise in most buildings, and that they can only be prevented from becoming a nuisance to those other occupants who did not create them and who do not want to hear them, by providing a sound insulating structure. By far the best means of achieving quiet in buildings would be to educate people not to create noise, but this is not within the architect's province. He can, however, sometimes exercise control over a source of air-borne sound in connection with radio in flats. The wireless set is one of our greatest difficulties, but I am sure that it is so largely because of the quite unnecessary loudness at which it is frequently operated. Individual wireless sets are never satisfactory in large blocks of flats since they can only be equipped with indoor aerials and are then subject to serious interference from other electrical equipment and to the screening effect of a steel or reinforced concrete structural frame. It is, therefore, nearly always desirable to provide some form of central reception. Of the two alternative systems available, the low frequency or relay system has the very great advantage of enabling the landlord to control the maximum output of the individual loudspeakers. This seems to me to outweigh the disadvantage of the system—namely, the partial restriction in choice of programme, and I suggest that architects should consider very carefully with their clients the desirability of installing relay systems in all blocks of flats which they are called on to design.

In turning to those miscellaneous noises which I have classed together as equipment noises we have the opportunity to consider much more fully the possibility of suppressing sound at its source, and it cannot be too strongly emphasised that where this is possible it is always the best course to adopt.

The modern building often contains a great deal of mechanical equipment involving some kind of power-driven motor, particularly electric motors. Refrigerators, lift motors, water-circulating pumps, ventilating fans are examples. All electric motors create a certain amount of noise, but for any one purpose there is nearly always a choice between a noisy and a quiet motor, and where noise is of consequence the architect should make sure that a quiet type of motor is specified. Generally speaking, it is the larger and slower-moving motor which is the quieter, and though the quieter motor is also likely to be the more expensive, it may well be cheaper in the long run to pay more for the motor than to spend money on attempts to prevent the transmission of sound from a noisy motor to other parts of the building. Nevertheless, where quiet is very important, it may still be necessary to insulate even a quiet motor. It is not usually the air-borne sound emitted by the machine which is a nuisance, but more often the sound which is transmitted by direct contact with the structure on which it stands, so that machinery should be isolated from the structure by mounting it on suitable resilient supports. In this connection, however, it is not always appreciated that the design of the supports is of the first importance. If due consideration is not given to the relation between the frequency of vibration or rotation of the machine and the natural frequency of vibration of the machine on its supports, matters may be aggravated rather than improved by the introduction of the resilient material. On the other hand, if the supports are correctly designed, considerable improvement will result. Sometimes, as in the case of circulating pumps, even if the pump and motor are isolated from the structure, they may be rigidly connected to metal piping which will also readily conduct the sound. This conduction may be very considerably reduced if a short length of rubber tubing is inserted near the pump, and, although the rubber will need periodical renewal, this need not constitute more than a minor item of maintenance.

On the question of circulating pumps there is a particular choice as to the type of installation selected. The most usual form consists of pump and motor mounted in line on a single casting, so that the noise of the motor is transmitted direct to the piping. Another type has the motor mounted on resilient supports above the pump, the drive being by means of a flexible belt, so that the hum of the motor is isolated from the piping. This type is obviously preferable.

Noise from sanitary fittings is nearly always troublesome, particularly in hotels and blocks of flats. The noise of water flow is set up by turbulence at a tap or other outlet. It is then transmitted partly by the water, but probably principally by the piping, almost as far as the piping extends, and at every pipe fixing sound is able to leak into the actual structure, and in these ways may travel over a wide area with relatively little diminution. The problem could best be overcome by installing taps which did not set up turbulence, and this is said to have been achieved in some countries. No such taps seem yet to be available in this country, however, and in that case the best method would be to insulate taps from piping by some form of rubber joint. It seems to me that it would in many cases be preferable to renew such a rubber joint periodically rather than suffer the annoyance of the noise. Noise arises from w.c.s partly by flushing, partly by the fall of water in the waste-pipe, and partly by the refilling of the cistern. The noise of flushing is reduced very considerably with a syphonic pan and a well-made, low-down cistern, or preferably a flushing valve. The fall in the waste-pipe is not usually troublesome when the pipe is outside the building, but if it is fixed to the light walls of an internal duct, the noise may be a considerable nuisance a few floors down; the solution is to provide reasonably solid duct walls and to insulate the pipe from its fixings, though the latter is not always easy. The noise of refilling the cistern is often the most troublesome, and is usually due to the hiss through the valve. All valves and taps tend to be noisier under high than under low water pressure, and the practice adopted in many districts of serving domestic fittings direct from the main is not to be recommended. Even if served from storage tanks the noise may still be a nuisance, but it can be reduced by restricting the flow, and it is nearly always worth while to provide a stop-cock in the branch to every w.c., which may be partially screwed down until the noise is sufficiently reduced. The best solution to this trouble would, of course, be to fit a silent ball-valve, and, although the noise set up by ball-valves varies very much, I have not yet found a very silent one. Another solution would be a rubber joint between the valve and the piping. This applies not only to w.c. cisterns, but equally to ball-valves to storage tanks.

The click of an electric light switch is often an aggravating sound. In high-class installations the switch is mounted in an iron box connected to iron tubing, and discontinuities may not, for electrical reasons, be introduced in the tubing system. The solution, therefore, must lie in silencing the switch itself. This is difficult to achieve with a quick make and break switch, but I am advised that, although a quick break is electrically of great importance in direct current systems, it is not an essential in alternating current systems, where a slow break actually has advantages. Any slow-break switch can be operated quietly, and there are now on the market well-designed underslung types of slow-break switch incorporating small rubber buffers which are remarkably silent in operation.

Another noise which can be a nuisance is the click of a door-catch. It is doubtful whether this can be entirely overcome, but at least the ordinary type of spring latch can be operated quietly by a thoughtful user, whereas ball catches and roller bolts, particularly in conjunction with steel door-frames, are always noisy and their use is strongly to be deprecated.

Planning.

We have discussed briefly the various types of noise met with in buildings, and considered methods of preventing their transmission from one part to another. I hope I have succeeded in conveying to you that the problem of preventing transmission is complex, but that research work is steadily elucidating the difficulties. The process of elucidation is bound to be fairly slow, and we have not yet reached the stage where we can allow noise to be created indiscriminately in any part of a building and successfully prevent it from being heard in every other part by the provision of an economic sound-insulating structure. We must therefore make use of every means at our disposal to mitigate the nuisance by reducing the

degree of insulation necessary. One such means which I do not think always receives the attention it deserves is planning. It is not so unusual to find w.c.s and bathrooms placed over living-rooms even in architect-designed houses; nor to find a lift-well carried up alongside bedrooms in blocks of flats; nor to find bedrooms overlooking small, high-enclosed service courtyards, bedrooms in which no one could hope to sleep after the first morning milk delivery. I do not propose to discuss this question in detail, but I would submit that noise is by no means the least of the many factors which must be taken into account in planning a building, and I would urge you to do all you can to keep those rooms where quiet is most needed as far away as possible from sources of noise.

Sound-Absorbent Materials.

This paper would be incomplete without a brief reference to the part played by sound-absorbent materials.

A sustained noise sounds louder in an enclosed room than the same source of noise in the open air, for the sound builds up by reflection from the bounding surfaces of the room. A sound-absorbent material is one which reflects sound less well than a non-absorbent material (that is the definition of absorption), so that the more absorbent present in a room the less will sound build up. The usefulness of absorbents has, however, strict limitations. Firstly, it is obvious that no amount will reduce the loudness of, say, a gramophone operating in a room below its loudness in the open air; secondly, the sound is not reduced in direct proportion to the amount of absorbent provided, and, beyond a certain limit, the further provision of absorption has no useful effect. If the noise of typewriters in a large, sparsely furnished, uncarpeted office with hard walls and ceiling were found to be a nuisance, then considerable relief would be derived from the introduction of a highly absorbent ceiling finish; but if the noise of a typewriter operating in a well-furnished, and therefore already absorbent, private office proved a nuisance, then the addition of further absorbent to ceiling or walls would probably have no noticeable effect.

In certain cases, then, noise within a room may be reduced by providing absorbents, and this will indirectly relieve to some slight extent the problem of insulating the noise of this room from its neighbours, but it must not be thought that the absorbent linings are providing insulation. The function of absorbent surfaces—to reduce reflection back into the room—and the function of sound-insulating construction—to reduce transmission to another room—are quite different and unrelated. A sound-absorbent material by itself is not necessarily a good insulation, and, indeed, the reverse is more often the case, the extreme example being the open window, which is taken as the standard of complete absorption, but provides no insulation at all.

Summary.

It has, naturally, been impossible in a paper of this sort to go fully into the details of the various points raised. If you wish to pursue the subject further, I would refer you to the forthcoming *Building Research Bulletin*. I think, though, that I have said enough this evening to allow us to draw certain fairly definite conclusions which I would summarise as follows:—

Considerable progress has been made in the scientific investigation of noise and noise transmission, and effective insulation can often be obtained where conditions are not severe and where cost is not unduly restricted. Nevertheless, we do not yet know how to construct buildings, even at unlimited expense, which will prevent so effectively the transmission of sound that we can allow noise to be set up indiscriminately in any part and rely on the insulation provided by the structure to prevent it from being a nuisance in every other part. It is therefore necessary to make full use of every available method of securing quiet. This means that the architect must consider the problem of noise, not only as a constructional one, but also as a planning problem, and he must, in addition, take the greatest care to specify quiet equipment.

In considering the structural side of the problem, it must be remembered that sound travels by a variety of paths, and the structure must therefore be considered as a whole and not in terms of individual dividing walls and floors. Above all, this must be considered from the earliest stages of design, for the application of special finishes after the building is erected provides no solution to the problem of sound transmission. The present trend of research suggests that the method most likely to prevent successfully the transmission of all kinds of sound is the provision of much greater discontinuity in buildings than is at present customary. The effectiveness of the proper application of this principle is now being investigated with promising results. Whether or not it is practicable remains to be verified, for it implies radical changes in building methods.

[Mr. Morreau's paper has here been reproduced in full. Owing to shortage of time, some part was omitted when the paper was read.—ED.]

DISCUSSION.

Mr. Hope Bagenal, seconding a vote of thanks proposed by Lord Horder, said that he knew how difficult it was to make the kind of generalisations which Mr. Morreau had been making that night. The paper was most valuable and useful, and he (the speaker) would say that the author's two tables of degrees of approximate insulation were just the sort of practical thing needed.

"I notice," continued Mr. Bagenal, "that Mr. Morreau spoke of approximate insulation in decibels, and he did not speak of average insulation. I should like to say that I highly approve of that. The method of averaging out reduction factors as between resistance to low notes and resistance to high notes seems to me to be misleading, because some partitions are very efficient for the high notes and not at all efficient for the low notes. What we have to get at seems to me to be the weak link in the armour of any partition, of any type of wall, and that weak link may appear when the partition increases beyond a certain drum dimension. When it becomes large that weak link may appear, or when it responds to some low tone, and what worries me, quite frankly, is that thin double partitions must be reduced in stiffness as they increase in size in a way that the 9-in. brick wall is not reduced in stiffness. I should like Mr. Morreau to give us his views on the loss of efficiency in partitions when they get beyond a certain size. It was for that reason that I thought it dangerous for Mr. Morreau to put the double 21-oz. glass in the same category as the 9-in. brick wall. The reason why old-fashioned people like myself are so fond of a 9-in. brick wall is that you can rely on it for a certain real performance. You can rely on it to give its 50 decibels for the low tones and 55 for the high tones, and even when it is a big wall of large dimensions that holds true, and it holds true also for low tones.

"Mr. Morreau's Table II for floors is, I think, admirable, but I wish he could have pilloried the 4½-in. filler joist floor, which is certainly, I should say, one of the very noisy ones, but which is used by large numbers of architects for workmen's dwellings and cheap buildings generally.

"With regard to workmen's dwellings, I should like to say that the Anti-Noise League have been concerned with the work on some workmen's dwellings in Shoreditch, designed by Mr. Dower. I had hoped that Mr. Dower would be here to-night and be able to talk about them. There an enlightened building committee gave to their architect the power to spend up to another 10s. per sq. yd. on the flat floors for sound insulation, provided they could be made bug-proof. As a result of that, certain floors have been tried and tested. They have not given in their tests as successful results as we could hope, but there is no doubt that the tenants are very grateful for them."

Wing-Commander T. R. Cave-Browne-Cave, C.B.E., asked for a little more information about the noise caused, and particularly the sound transmitted, by water-pipe systems. He thought that it ought to be possible to devise a really satisfactory form of flexible joint which could be inserted into a water-pipe system to prevent almost the whole of that transmission, whether the noise came from the circulating pump or from sources in close proximity to the remainder of the system. He would also like to ask how far the existence of a soft surface on a partition would reduce the extent to which it would emit noise transmitted through the structure.

Sir Richard Paget, Dr. A. H. Davis, Dr. J. E. R. Constable, Mr. Raymond Walker, Mr. Raydon, Mr. Edwin Smith and Mr. L. H. Bucknell also contributed to the discussion. Mr. L. H. Bucknell said that he did not think it was true that architects were ignorant of the theory of sound transmission, but what they wanted to know from the Building Research Station was what they could do.

Mr. C. J. Morreau replied briefly to some of the points raised in the discussion. With regard to conduction of sound along water-pipes, he thought the answer was that sound did travel along the water, but a great deal more travelled along the pipe. There was evidence that the insertion of an adequate rubber joint was very effective in reducing transmission. He did not think there was any evidence that a wall finished with a soft surface emitted less noise than a wall finished with a hard surface.

"Dr. Davis," continued Mr. Morreau, "took me to task for comparing single with double walls, and he is perfectly right, but the matter is a difficult one, and we must try to introduce some broad generalisations. Admittedly the double window which I compared with a 9-in. wall is, as Dr. Davis says, very much less effective than the wall against low-pitch noise." In reply to Mr. Bucknell, Mr. Morreau said that he had given a warning before he started that he could not tell how to build a soundproof building, but it was surely a tremendous advance to know the principles. "You cannot," he declared, "apply principles until you know them, and how long is it since we have known any principles? The next step is certainly to apply them, and that is what the research workers have to try very hard to do, but I think that we should thank them from the bottom of our hearts for having discovered the principles."

The last question was with regard to the effect of air-space in double partitions. The matter was somewhat complex. In the type of double partition such as the double window, where there was little or no linkage round the edges, the air-space was a vital factor, and an increase of air-space provided a very considerable increase in insulation; but where the main transmission across the double partition was by way of the edges, as in the case of nearly all masonry or light block partitions, so long as the sound was travelling round the edges it did not much matter what the air-space was. In the case of ordinary double partitions, therefore, the air-space was not of any consequence, nor was the introduction of an absorptive substance into the air-space of consequence. If we could have really efficient edge insulation, the air-space might become important.

OBITUARY

E. Turner Powell, F.R.I.B.A.

The death is announced of Mr. E. Turner Powell, F.R.I.B.A. Mr. Powell, who was articled to Sir Alexander Stenning, was elected F.R.I.B.A. in 1905 and was placed on the retired list only this year. He designed much domestic work.

Marten B. Perry, L.R.I.B.A.

The death is announced of Mr. Marten Bingham Perry, L.R.I.B.A. Mr. Perry, who was 80, was elected L.R.I.B.A. in 1911.

E. P. Warren, F.R.I.B.A.

A memoir of Mr. Warren is on page 965.

THE SCIENTIFIC USE OF CONCRETE

ITS EFFECT ON THE COST OF CONSTRUCTION

A PAPER READ BEFORE THE CHARTERED SURVEYORS' INSTITUTION.

THE half-yearly general meeting of Quantity Surveyor Members was held at the Chartered Surveyors' Institution on November 17. Mr. E. C. Harris, Chairman of the Quantity Surveyors' Committee, occupied the chair, and, in introducing Mr. Mangin, the author of the paper to be presented that evening, said that the subject of the paper, "The Scientific Use of Concrete and its Effect on the Cost of Construction," might appear at first sight to be one of more special interest to the contractor, but he submitted that the more quantity surveyors understood and were familiar with the habits of the materials in common use in the industry in which they were practising, the better would they be able to specify, to advise on, and to criticise those materials when they came under their special notice.

THE PAPER.

"It has been thought advisable for the sake of clarity," said Mr. Mangin, "to divide the subject into four major parts, dealing consecutively with, first, concrete as a homogeneous material; secondly, with the ingredients used in its manufacture; thirdly, with the design of concretes for different purposes; and, fourthly, with the economics of the subject, in an endeavour to illustrate the saving in costs which can be brought about by the use of scientific methods of manufacture and distribution.

"Unlike other construction materials, concrete manufacture has remained principally in the hands of the individual user, and in consequence its quality has depended primarily upon the competence of those in charge of mixing and placing operations to interpret the requirements imposed by the architect or engineer in his specification. The application to actual practice in the field of the knowledge gained through the intense research which has been and is being carried out has tended to improve the quality of the product, but it is an admitted fact that theory is still far ahead of practice.

Concrete Considered as a Homogeneous Material.

"The wide variation which exists in the character of the ingredients used in the manufacture of concrete usually renders it impossible exactly to reproduce laboratory technique and results in the field, while their wide distribution has been an important factor in the tendency to decentralise manufacture. In addition, there is the obvious consideration that the time which must elapse between the manufacture and use of the material is strictly limited. While the quality of concrete available for general construction projects meets in general the needs of industry, it does not comply fully with the requirements which modern building design demands, and it is largely for this reason that the centralisation of the manufacture of concrete under skilled technical control has become accepted practice in the United States of America and Canada, and is steadily gaining ground in this country.

"To the architect or engineer engaged in the design of modern structures the question of cost is of secondary importance only to that of strength, and it is only by strict control of the many variants entering into the manufacture of concrete that cost and strength can be properly balanced. Despite everything, however, the importance which concrete has assumed in the construction industry during the past decade places it in the same category as other standard construction materials, such as steel and brick. Both the quality of concrete and the theories of design involved in its use have lately been the subject of intense critical study, and the knowledge gained has made possible a new quality of workmanship and an ever-widening use of this plastic and versatile material."

Materials Used in Manufacture of Concrete.

Concrete was a substance, continued the lecturer, the chief components of which were stone and sand bound together by a matrix of hardened grout composed of cement and water. In general, the aggregates represented some 70 per cent. to 85 per cent. of the whole, and their importance was therefore hardly less than that of the cement forming the matrix. Mr. Mangin then discussed the various components—cement, water and aggregates employed. On the subject of aggregates, he said :—

"The coarse aggregates most generally used are crushed rocks of various types, alluvial or glacial gravels and slags. In the case of crushed rocks it is necessary that the surface of the particles shall be free from dust, and that cracks or incipient fractures shall not be present in the fragments themselves. The same conditions hold good for gravel, except that in this case the danger is that clay, silt or organic matter may be present in the deposits and, through incomplete washing, are not eliminated. Tests taken of various sands and aggregates used in London have shown that in some cases the quantity of silt present may be as high as 20 per cent.

"Of all the materials used in the manufacture of concrete, sand may be considered as the component most difficult to control, and the one most likely to have an adverse effect upon strength and density. The feature which gives the greatest concern when proportioning by loose volume is that of 'bulking.' 'Bulking' is controlled by the shape and size of the sand particles and the amount of water held in suspension. In sands composed of coarser particles the increase in bulk is not so great as with finer sands, the maximum 'bulking' in the latter case reaching as much as 42 per cent., with 5 per cent. of moisture. This is the worst condition, and it is a coincidence that 5 per cent. to 6 per cent. of moisture is the quantity most often found in sands in common use.

"The theory of 'bulking' is based on the idea that the particles of sand are separated by a film of air and water which surrounds them, thus producing an increase in volume, and that the amount of air and water so contained is dependent upon the shape and size of the particles. When the amount of water is increased to a point at which the water films coalesce, the sand resumes its normal bulk. It is then said to be 'inundated.' A number of tests made in this country show that when certain sands are placed in a receptacle and water introduced to inundation point it is impossible to release all the contained air, even when agitated for long periods, and the only certain method is to pour the sand through the water. This difficulty does not arise with sands composed of well-rounded particles. It is logical to assume that when sand in this bulked condition is used for making concrete the contained air is not entirely released, and in consequence voids remain in the concrete, although prolonged mixing may ultimately allow most of it to escape.

"If we consider a case in which concrete is being mixed in stated volumetric proportions on the site, we shall better understand the effect which this 'bulking' has upon practical results. Let us suppose that the specification calls for a mix in the proportion of 1 : 2 : 4. The contractor will endeavour to control these proportions by the use of wooden boxes of, say, 1, 2 and 4 cubic feet capacity each. On the aasumption that his sand contains 5 per cent. of moisture—a not unusual condition—his 2 cubic feet of sand become 1.2 cubic feet, and the actual proportions of the mix are therefore 1 : 1.2 : 4. Under these conditions a mix in these proportions would almost certainly prove unworkable, and it can be shown from the results of many tests that the specification necessary to produce satisfactory results under the supposed conditions should have been approximately 1 : 2.2 : 3.8. It can also be shown that, apart from being extremely difficult if not impossible to work, the original mix would contain a high percentage of voids. In practice, of course, the contractor adjusts his proportions in order to ensure workability, and the actual specification is seldom adhered to.

"These difficulties due to the 'bulking' of the sand are in modern practice eliminated by computing the absolute volume of the sand from its specific gravity and controlling the proportions by weight instead of volume. Sands used should be composed of inert particles which will remain unchanged throughout the life of the concrete. The particles must be impervious to moisture and completely free from silt and other surface coatings. Unstable particles, such as mica or carbon, are often found in sands, and these impurities will have an adverse effect upon the strength, durability and permeability of the concrete.

Factors which Determine the Composition of Concrete.

"While concrete as at present produced for general construction purposes more or less meets the needs of industry, it does not comply with the requirements now arising for grades of concrete of definite uniformity and strength which will allow architects and engineers to utilise a factor of safety giving the highest economy in design. The architect and engineer, when deciding upon the structural material to be used, must not only consider the question of cost but that of durability. Durability can be considered as the ability to resist fatigue, decay and abrasion.

"The most costly component of concrete is cement; therefore, if concrete is to be produced economically to compete with other structural materials, the more graded aggregate used the less cement-water matrix is required, and thus more economical concrete is produced up to a point where the concrete becomes unworkable. The method of expressing the workability of concrete in terms of its slump is at best only an approximate guide, as slump is affected by the size and shape of aggregates and the proportion of cement and water paste. Where complete control of all variants is established, then workability or consistency may be regarded as a function of the water-cement ratio. Workability or consistency, which in turn controls permeability, will depend upon the proper design of the concrete, for the cement and water paste acts not only as a coating for all particles of aggregates and sand, but also as a void filler and lubricant, and while the addition of water to reduce the consistency of this paste may increase workability, it will only do so by the sacrifice of strength. Again, if the water-cement paste be too stiff, then a highly resistant concrete is produced at the expense of workability. A happy medium must be found, and this is only possible with complete control of all factors affecting the mix.

"The main factors, therefore, which determine the composition of good concrete are the following, the relative importance of each varying to some extent according to the particular purpose for which the concrete is being used : Strength, workability, durability, and economy of materials."

The lecturer then dealt with voids, and the grading of aggregates, and water-cement ratio. In regard to the latter question not only, he said, was it of first importance to ensure proper control of the amount of water actually added to the dry materials, but unless the initial moisture content of the aggregates and in particular of the sand was known with accuracy, no care exercised in the actual proportioning and mixing could give the best results. It was therefore of the utmost importance that initial moisture content should be determined in advance and at frequent intervals.

Methods of Mixing and Transporting Concrete.

"It should by now be clear that it is practically impossible to produce a uniform concrete which will comply with the specification when mixing is carried out on the site of the works, and on this assumption I will now deal briefly with the alternative method whereby the manufacture of concrete is centralised and carried out under conditions which permit of the fullest control of each operation. For present purposes we may consider centralised manufacture as comprising two alternative methods. In general terms these are known as the 'central mix' method and the 'mix in transit' or 'truck mix' method.

"The importance of thorough mixing needs no emphasis, and the truck-mix method scores heavily on this point. Whereas, when using small mixers located on site, there is an ever-present tendency to reduce the mixing time in order to obtain greater output, no such temptation exists when mixing in transit as the whole of the travelling time is available for this purpose if necessary. The dangers of over-mixing are more theoretical than practical, and it has been clearly established that the controlling factor which ensures a good mix is the total number of revolutions of the mixing drum and not its speed of rotation. Hence on long hauls the speed of the drum may be reduced, with a consequent saving in fuel costs, without in any way affecting the quality of the mix.

"It will need little argument to convince the unprejudiced mind that it is far easier to exercise control and to produce a uniform concrete closely to specification under conditions where the whole of the operations are carried out at one central point under the supervision of competent staff, but these conditions were seldom, if ever, fully realised prior to the advent of truck-mixed concrete. Under such conditions means can be provided for accurately controlling by weight the quantity of every component used in the production of the concrete."

It was, said the lecturer, necessary to consider the point of view of those who had to design and specify concrete and to mix and place it at the present time. Architects and engineers, who were purely concerned to obtain the best concrete for their purpose in the most economical manner, would be concerned about the following points: (1) *Divided responsibility. If defects in concrete follow placing, how can responsibility be determined? How can proper pouring and tamping be ensured?* (2) *How will placing costs be affected by the new method?*

The lecturer answered the first point by saying that responsibility for correct placing and tamping would rest, as always, with the contractor, and the fact that he was taking delivery from a large mixer instead of a small one should not have any effect upon the result. In regard to the second point, it needed little argument to show that where the mixer could be brought right up to the point where the concrete was required (as was usually possible) the cost of placing must be less than where transport was necessary between the mixer and the pouring point. In addition, the truck mixer was so designed as to discharge the whole of its load, which might be from 2 to 5 cubic yards, in a matter of a minute or two—a rate of supply quite impossible with a number of smaller mixers.

Vibration Applied to the Placing of Cement.

"It has long been known that vibration applied to any loosely compacted material will tend to reduce the interstitial spaces and so produce consolidation together with a proportionate reduction in volume. It is only recently, however, that any attempt has been made to elucidate the principles involved and to make such data as is available accessible to the practical engineer. In practice vibration of the correct frequency and amplitude has the effect of consolidating wet concrete and so producing a material which is noticeably stronger, more impervious and more durable than would otherwise be the case. In addition, it has been found that vibration facilitates the flow of the concrete so that it is more able to fill the forms and to flow round steel reinforcement, with the result that the common tendency to produce a 'honeycomb' effect is eliminated.

"This means, in effect, that workability is improved, and it is therefore possible to use a lower water-cement ratio where vibratory methods are employed, with a consequent further improvement in the quality of the concrete."

In conclusion, the lecturer said: "There is little doubt that the introduction of vibratory methods in this country has been retarded by the general absence of control in the production of concrete. It is of the first importance that the mix shall be designed to suit vibratory placing methods, and cases are on record in which the standard mixers available were incapable of producing the necessary concrete owing to the low water-cement ratio which it becomes possible to use. It is fair to state, therefore, that the full value of this new method will only be realised when uniform concrete conforming closely to specification is more generally available."

DISCUSSION.

Mr. D. H. Green (President of the Reinforced Concrete Association) said that he had very much appreciated the paper which was sure had done a very great service to reinforced concrete. He would not pretend to agree with everything that the author had said; that, he was sure, would be most unprofessional! There were some points, however, upon which he was in close agreement with the author. He favoured and hoped for the extension of the use of truck-mixed or factory-mixed concrete, but probably for a different reason from the author's. His own reason for desiring an extension of the use of factory-mixed concrete was that it would tend to establish a price for concrete. Cut-price concrete was the bugbear of the reinforced concrete engineer. Many times he had noted architects and quantity surveyors approving prices for concrete which would not cover the cost of the materials if mixed to the specification. Reinforced concrete engineers would welcome an increase in the price of concrete if it meant an improvement in the quality of the material, and he therefore welcomed the factory-mixed concrete.

He did not agree (continued Mr. Green) with the statement in the paper: "It is an admitted fact that theory is still far ahead of practice." He did not know whether that was an aspersion on the practice or a compliment to the theory, but he thought it was probably the former. The author had quite rightly drawn attention to the quality of concrete produced under factory conditions, but personally he did not think it should be suggested that the quality of site-made concrete was necessarily inferior. He thought there was no doubt that site-made concrete, made with proper materials and average intelligence, was a material which was well up to the standard which was required on the site. If, in referring to theory, the author meant the theory of reinforced concrete as indicated in the regulations, he thought the remark should be reversed; the practice of reinforced concrete was very much in advance of the theory, particularly in the manufacture of concrete.

There was one question which he would like to ask the author. If a contractor committed himself to the use of ready-mixed concrete, what delays would he be likely to incur?

Mr. H. E. Steinberg said that the author had made great play with the fact that a very small increase in the water content changed the bulking of sand, but that difficulty, which he thought the experience of the last 30 years had shown to be more academic than practical, was now being overcome by many mixers on the job, which, like the batch mixer, weighed the sand and stones and did not mix them by volume. With regard to the advantages of making concrete at a central depot and transporting it by road as compared with making it on the site, personally he was inclined to doubt the benefit of the former method. Under the Code of Practice, the engineer and the contractor had to maintain a specified quality by frequent tests, and, although to meet the high stresses permissible in design the crushing tests had to be fairly severe, there was no great difficulty in maintaining the quality specified.

Mr. Horace W. Langdon thought that perhaps the author regarded quantity surveyors as people other than they actually were. Personally, he felt that the quantity surveyor must always exercise a considerable reticence and should not be too ready to interfere or even make suggestions to architects or builders as to how their work should be done.

Mr. J. R. B. Mann suggested that a point that should be taken into consideration in using concrete was the finish, both external and internal, of the concrete. It seemed to him that at present one could not get a really satisfactory finish on concrete. Either one attempted to finish it smooth and had to paint it afterwards, or one rendered it and probably had to paint that as well. He would be very interested to hear what were the possibilities of getting a satisfactory and economical finish with some special aggregates.

Mr. P. H. Mangin, in replying to the discussion, said he did not think anyone would disagree with Mr. Green's statement that it was possible to mix on the site a concrete of the same quality as could be mixed at a central depot. The point of his argument in the paper was that facilities were so seldom provided on the site to enable the contractor to produce that quality of concrete, and when one was dealing with comparatively small volumes, such as the mix of an ordinary ½-yd. mixer or even a ¾-yd. mixer, it was a matter of no small difficulty to control the proportions in the same way as could be done on larger mixers of 2, 3, 4 or 5 cub. yds. He would like to make it clear, however, that it was quite feasible to provide means on the site for producing concrete exactly to specification. His only complaint was that it was very seldom done.

Mr. Green had also raised the point as to where the contractor stood when he had committed himself to buying his concrete and the organisation of the supplier was not good enough to ensure that he obtained the quantity that he required at the time when he required it. In that connection he believed that London presented the greatest difficulties of any city in the world. He would not deny that cases did occur in which, owing to fog or special traffic conditions, delays occurred which were exasperating to the contractor, but, as time went on and as the ready-mixed concrete manufacturer got to know his job better and better, those delays and difficulties were getting less and less.

Replying to Mr. Steinberg, who had raised the question of the bulking of sand, he did not understand and he would very much like to know how it was possible by volumetric method to compensate for the adjustment and still adhere to the specification which had been laid down. With regard to the question of cost, there should be a slight saving in the cost of ready-mixed concrete as compared with site-mixed concrete. He had not any figures with him, but he thought that, if one took the average cost of the materials in a mix of the nature under discussion (1 : 2 : 4) as being 14s., which was, he thought, a fair average, on an average haul it should not cost the producer more than 17s. delivered on the site, and he could usually get a price of about 20s. or 21s. and still undersell the contractor who made the concrete himself.

Mr. Mann had raised the question of external finish. He (the speaker) knew very little about that, but he could say that the cement companies in this country had spent a very great deal of money and time in experimenting on the question, and they had samples which were open to inspection by anyone, showing how they had obtained a high-grade finish in various colours for all kinds of purposes.

SOCIETIES AND INSTITUTIONS

R.I.B.A.

Council Minutes.

FOLLOWING are notes from the minutes of the Council for October 18 :—

R.I.B.A. Statutory Examination for District Surveyors, October.—The Board of Architectural Education reported that at the Examination held in October two candidates sat, of whom the following was successful : Mr. James H. Ogden.

The R.I.B.A. Examination for Building Surveyors, October.—The Board reported that five candidates sat for this Examination and that the following were successful : Mr. John Davies, Mr. Stanley E. Thompson.

Model Building By-laws.—A report was submitted from Mr. Eric W. B. Scott (F.), the R.I.B.A. representative on the Ministry of Health Advisory Committee on Model Building By-laws. It was agreed to convey the warm thanks of the Council to Mr. Scott for his report and for acting as the R.I.B.A. representative on the Advisory Committee and to forward his report to the Science Standing Committee for their information.

Report of the Trunk Roads Joint Committee of the C.P.R.E.—On the recommendation of the Art Standing Committee it was agreed to write to the Ministry of Transport expressing approval of the Report of the Joint Committee and urging that the terms of the report should be borne in mind.

Centenary of the Swiss Society of Engineers and Architects.—It was reported that Professor Otto Rudolf Salvisberg, Honorary Corresponding Member, had represented the R.I.B.A. at the centenary celebrations of the Swiss Society of Engineers and Architects from September 4 to 7. A letter was submitted from the Swiss Society thanking the Council for the congratulatory address which had been sent by the R.I.B.A.

R.I.B.A. Architecture Bronze Medals.—The Leicester and Leicestershire Society of Architects: The award of the jury in favour of the Imperial Typewriter Co.'s offices, East Park-road, Leicester, designed by Messrs. Pick, Everard, Keay (F.) and Gimson, was formally approved. *The Liverpool Architectural Society:* The award of the jury in favour of the Mersey Tunnel Ventilating Building, Woodside, Birkenhead, designed by Mr. Herbert J. Rowse (F.), was formally approved.

National Parks.—On the recommendation of the Town Planning, Housing and Slum-Clearance Committee, the following resolution was passed for transmission to the Minister of Health :—

> That the Council of the Royal Institute of British Architects welcomes the interest in National Parks which the Ministry of Health has shown in receiving the deputation of the National Parks Standing Committee, and urges the Government, through the Ministry, to set up without further delay a National Park Authority, as recommended in the 1931 report, and to take all other necessary steps to ensure the preservation and dedication, as National Parks for open-air recreation, of suitable areas in England and Wales and in Scotland.

Fourteenth International Congress of Architects, Paris, July 19-25.—A report was submitted by Lt.-Col. H. P. Cart de Lafontaine (F.) on the proceedings at the Fourteenth International Congress of Architects. It was agreed to express the Council's thanks to Dr. H. V. Lanchester (F.) and Colonel Lafontaine for acting as the official R.I.B.A. delegates at the Conference, and it was agreed to publish Colonel Lafontaine's report in the Journal.

Court of Governors of the University College of the South-West of England.—Mr. John Bennett (F.) was reappointed as the R.I.B.A. representative on the Court of Governors of the University College of the South-West of England.

Revision of the Scale of Professional Charges.—On the suggestion of the Chairman of the Practice Standing Committee the question of ratifying the amendment to Clause 2 (e) of the Scale of Charges, provisionally approved at the Council meeting on June 21, was deferred pending a further report from the Practice Committee on the matter.

Transfer to the Retired Members' Class.—The following members were transferred to the Retired Members' Class : as Retired Fellow, Arthur Keen; as Retired Licentiate, Joseph Arthur Coe. A special letter of thanks was sent to Mr. Arthur Keen for his many years of devoted service to the Institute.

Resignation.—The following resignation was accepted with regret : Charles Frederick Siebert (L.).

Following are notes from the minutes of the Council for November 1 :—

New Library Catalogue.—A resolution of thanks was passed in favour of Mr. Sigismund Goetze (Hon.A.) for his generous gift towards the cost of the new Library Catalogue.

British Standards Institution.—Owing to the resignation of Mr. Alan E. Munby (F.), through ill-health, from various committees of the British Standards Institution, the following were appointed in Mr. Munby's place :—

Building Divisional Council : Mr. H. M. Fairweather (F.).

Technical Committee B/19, Unit Weights of Building Materials : Mr. Oscar A. Bayne (A.) and Mr. W. R. Glen (L.).

Technical Committee PW/49, High Alumina Cements : Mr. C. J. Morreau (A.) and Mr. Frank H. Heaven (A.).

Mr. Percy V. Burnett (F.) was appointed to represent the R.I.B.A. on the following Committees : Technical Committee SF/6, Areas and Heights of Chimneys; Technical Committee B/47, Fireplace Openings.

Plumbing Trades National Apprenticeship Council.—Mr. R. J. Angel (F.) was appointed to represent the R.I.B.A. on this Council.

Proposed London County Council Codes of Practice.—The Science Standing Committee reported that, as a matter of urgency, they had appointed Mr. Walter Goodesmith (A.) and Mr. J. Ernest Franck (F.) to represent the R.I.B.A. on a joint committee of the R.I.B.A., the Chartered Surveyors' Institution, the Institution of Civil Engineers, and the Institution of Structural Engineers, to consider the proposed Codes of Practice under preparation by the London County Council, the first two of which relate to the use of electric arc welding for structural steelwork and to special steel reinforcement for reinforced concrete.

NORTHERN A.A.

Presidential Address.

The opinion that improvement in taste and artistic perception among some patrons was "painfully slow in manifesting itself" was put forward by Mr. George H. Gray, North Shields, President of the Northern Architectural Association, in his inaugural address on November 10. "Most people," he said, "will agree that the stupendous growth of our democracy, excellent though it be in itself, has created a patronage of the Arts, vast in size, but yet ignorant in artistic perception and unappreciative of the tremendous value of well-ordered amenities in our civic life, industrial conditions, and domestic surroundings." Mr. Gray said a preponderance of members of local authorities, who in many matters governed architects, did not appreciate that architects were experts in planning in its highest and widest sense, and trained by a long and elaborate process to perceive the differences between well-ordered and disordered amenity.

Giving an illustration "near home," where certain members of a local authority claimed that they, as representatives of the people, were the proper arbiters as to the finest expression of architecture for civic buildings, Mr. Gray said : "Such lack of appreciation really appals me, and I wonder if it is serious. Would the same leaders of thought call in a member of the legal profession to prescribe for the health of the community or seek the advice of a successful trader on any complicated legal problem?"

A.A.S.T.A.

Membership Campaign.

The A.A.S.T.A. has recently commenced a campaign to double its membership by asking every member to gain one new member during the next twelve months.

"Our most urgent task," says a special notice issued to members, "in the twilight of a receding 'boom,' is to build up the membership of the A.A.S.T.A. Is the assistant prepared to face another slump? Without an influential body, representative of the majority of architectural and technical assistants, how will he be able to influence the trend of events, to guarantee the continuance of building and public works (which were so quickly abandoned in 1931) or to provide for his relief?

"A big increase in membership would greatly enhance the influence of the Association and the effectiveness of its work in relation to the R.I.B.A. and on the Architects' Registration Council, on which it is represented in direct proportion to the number of architect members. But the main reason for the campaign, 'made more urgent by present economic tendencies,' is that it is realised that the ultimate success of the Association in securing in practice the general adoption and recognition of minimum salary scales and other reforms must depend ultimately on its bringing into membership a majority of architectural assistants.

"The present membership of the Association is still under a thousand. Ninety new members have been elected during the last two months."

NEW BENEFITS OF MEMBERSHIP.—The Association is shortly to announce certain attractive new benefits of membership made possible by the recent increase in the rate of recruitment of new members. These will include, amongst others, a new Unemployment Benefit to be available free to all members, a supplementary Unemployment Benefit Scheme and a Group Sickness and Accident Benefit Scheme.

PUBLICITY : A CHALLENGE.—To finance the new campaign and the literature to be issued in connection with the new benefits, the Council of the Association has appealed to members for support to a Publicity Fund. In this connection the following telegram, we learn, was recently dispatched from a branch meeting of the London Co-operative Wholesale Society's Architects' Department to other co-operative house branches of the Association : "C.W.S. Architects' London Branch Meeting send greetings. Have guaranteed collect £10 from 60 members for A.A.S.T.A. Publicity Fund by Christmas. Challenge you, in proportion to membership, to beat this."

ROYAL SANITARY INSTITUTE.

Special Course for Sanitary Science Examination.

IN preparation for the Royal Sanitary Institute's examination in Sanitary Science, to be held next year, the Institute provides a special course of training, comprising lectures and demonstrations over a period of two months, covering the syllabus of the sanitary science examination. The course begins at the Institute on Monday, January 10, next. The secretary will be glad to send particulars and the syllabus of the examination. Applications should be addressed to the Secretary, The Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.1

MODEL BY-LAWS—XIX

By W. T. CRESWELL, K.C., assisted by NORMAN P. GREIG, B.A., Barrister-at-Law.

EARTH-CLOSETS.

Entrance.

By-law 112 requires that an earth-closet in connection with a building must have its only direct entrance from the external air.

Position.

It must be not less than 40 ft. from a well, spring or stream of water used or likely to be used for drinking or domestic purposes, or for the manufacture or preparation of articles of food or drink for human consumption, or for the cleansing of vessels used in the preparation or sale of such articles. Furthermore, the position is not to be such as to render any such water liable to pollution.

Lighting and Ventilation.

Sufficient lighting and ventilation must be provided by an opening placed as near the top of the earth-closet as is practicable, and opening into the external air.

Floors.

All the floor of an earth-closet must be of non-absorbent material at a level of at least 3 in. above the ground outside. It is also to have a fall towards the entrance door of at least 1½ in. to the foot.

Construction of the Receptacles for Fæcal Matter.

These are to be of non-absorbent material and so made and fixed that their contents cannot leak away or be exposed to rainfall or to the drainage of waste water or liquid refuse.

Size of Receptacle.

The size of this is restricted so as not to become unmanageable. It is not to exceed a capacity of 2 ft. cube; but it may be of a less capacity if it will take all fæcal matter, earth or material which is likely to accumulate therein during a period of not more than a week.

Not to Communicate with any Drain.

No part of the earth-closet or the receptacle is to communicate with any drain.

Provision of Vessels for Deodorising Material.

A suitable vessel of adequate capacity for dry earth or other suitable material is to be provided and placed in a readily accessible position to take the deodorising material; also, sufficient and proper means are to be furnished for applying this material to the fæcal matter in the receptacle.

Walls.

The walls of the space beneath the seat, except the opening for access thereto, are to be impervious to moisture.

Seats and Spaces for Receptacles.

The seat, its aperture, and the space beneath it are to be of such dimensions and so placed as to prevent the deposit of fæcal matter elsewhere than in the receptacle itself.

Access to Spaces for Receptacles.

Proper access for cleansing the space beneath the seat and for removal of the receptacle must be provided.

ASHPITS.

Position.

By-law 113 requires that an ashpit must be at least 10 ft. from any dwelling-house or public building or any building in which any person is employed in any manufacture, trade or business. Also 30 ft. at least from any well, spring or stream, etc., as described in detail in the position given above for earth-closets.

Access for Cleansing.

It must have means for cleansing and, if possible, none of the contents of the ashpit should be taken through such dwelling-house or public building, etc.

Floors.

The floor is to be of flagstones, concrete or the like, and must be 3 in. at least above the adjoining ground.

Walls.

Walls are to be not less than 4 in. thick, of hard, smooth brickwork in cement mortar or, if common brickwork, 8½ in. thick. They must be rendered inside with cement and sand or other suitable non-absorbent material.

Not to Communicate with any Drain.

Communication with a drain is forbidden.

Ashpits for Private Dwelling-houses.

By-law 114 requires these to be not more than 20 cubic feet in capacity, properly roofed and ventilated. They must have proper doors fitted and placed and secured so as to prevent the escape of the contents.

[A footnote is appended to these "ashpit by-laws" to the effect that, inasmuch as Section 75 of the Public Health Act, 1936, is now in force, by-laws 113 and 114 may not be appropriate where a local authority either provide, or require the provision of, dustbins.

By Section 75 of the 1936 Act, local authorities who have undertaken the removal of house refuse can, by written notice, require an owner or occupier to provide covered dustbins of an approved size, etc., though any in use on October 1, 1936, need not be replaced as long as they are suitable, properly covered, and in proper condition.

There is no prescribed specification, nor is the matter one to be dealt with by by-laws (under Section 72). Inasmuch as persons aggrieved by a requirement of the local authority under Section 75, can appeal to a court of summary jurisdiction, it would appear that the magistrates might be called upon to decide upon the question of suitability of a dustbin, and the determination of its size would naturally depend upon the frequency of collection.

Should an owner or occupier, after notice as above, fail to maintain in good condition a dustbin he has been required to provide, or replace a worn-out one, the local authority can provide one and recover the expense from the delinquent. Authorities under the section can also provide dustbins at an annual charge not exceeding two shillings and sixpence, which may be recovered as part of the general rate.]

CESSPOOLS, ETC.

Cesspools and Sewage Tanks.

A cesspool or tank for the reception or disposal of foul matter (other than a tank for the reception or disposal of trade effluent) is, by by-law 115, subject to the following requirements :—

Position.

It must be not less than 50 ft. from any dwelling-house, etc. (see the requirement above for earth-closets and ashpits), and not less than 60 ft. from any well, spring, etc. (as given in the case of earth-closets and ashpits).

Access for Cleansing.

The cesspool must be constructed and placed so that it may be readily accessible for emptying and cleansing, also so that none of its contents, in the above processes, would be taken through any dwelling-house, etc.

Discharge.

The discharge of any foul matter or foul water into a sewer or watercourse therefrom is forbidden.

Construction.

Its construction must be such that it is impervious to liquid from the outside or inside. If of brickwork, it must be rendered inside (that is, steined dry) with cement and sand, or properly asphalted, and if the soil around is waterlogged, the cesspool must have a 9-in. backing of well-puddled clay.

Covering and Ventilation of Cesspools.

A cesspool must be arched or otherwise covered and ventilated. (This does not apply to a settlement tank or other tank for the reception or disposal of foul matter.)

Ventilation of Tanks.

When a tank is covered it is to be ventilated or, alternatively, to be provided with mechanical means for drawing off gases therefrom.

Tanks for Trade Effluents.

These are to be constructed and placed so as not to cause pollution to any well, spring, etc., as given above in the case of earth-closets and ashpits.

BUILDING STATISTICS

Employment.

EMPLOYMENT during October showed a slight decline on the whole according to Ministry of Labour figures. The decline affected all administrative divisions and all occupations except plumbers, and was most marked in the painting and decorating branch of the industry. On the whole there was little change compared with October, 1936. As regards individual occupations, employment was fair with slaters and tilers, moderate with painters, and good with other classes of skilled operatives. In some districts shortages of certain classes of skilled operatives were reported. With labourers to skilled occupations and builders' labourers employment was fair, but there was considerable unemployment among navvies and general labourers and in certain other occupations. At October 18, 126,280 insured persons (representing 12.2 per cent.) were registered as unemployed. This was an increase of 0.9 per cent. over September, but 0.5 per cent. better than for October, 1936.

Building Plans Approved in October.

Returns as to the estimated cost of buildings, for which plans were approved during October, have been received from 142 local authorities (representing towns with a population of 17,311,000 in 1931). The returns show that, in October, 1937, plans were passed for buildings with an estimated cost of £8,494,200, compared with £8,523,900 in October, 1936. This represents a drop of 0.3 per cent. over the figures for October, 1936.

The comparisons between figures for various classes of buildings for October, 1937, and October, 1936, are as follow (1936 figures in parentheses) : Dwelling-houses—£5,415,300 (£5,694,000); factories and workshops—£485,300 (£526,000); shops, offices, warehouses and other business premises—£819.800 (£577,900); churches, schools and public buildings—£674,100 (£645,500); and other buildings, and additions and alterations to existing buildings— £1,099,700 (£1,080,500).

Statistics for the Third Quarter of 1937.

Particulars are now available for the whole of the 146 authorities covered by the Department's inquiries with regard to the estimated cost of buildings for which plans were passed during July to September, 1937. The total for the third quarter of 1937 is £25,051,700, which is a drop of 9.9 per cent. over the £27,805,600 figure for the corresponding period of 1936. The comparisons for the various classes of buildings are (1936 figures in parentheses) : Dwelling-houses — £15,474,600 (£17,670.800); factories and workshops— £2,137,300 (£3,079,900); shops, offices, warehouses and other business premises—£2,121,900 (£2,078.500); churches, schools and public buildings—£2,408.800 (£1,997,800); and other buildings, and additions and alterations to existing buildings—£2,909,100 (£2,978,600).

Number of Dwelling-houses.

The number of dwellings for which plans were approved by the 146 local authorities in the third quarter of 1937 was 29,971, as compared with 35,375 in the third quarter of 1936. For September alone the number was 10,523, as compared with 10,471 in September, 1936.

Electricity Supply Undertaking, South Africa.

With reference to a call for tenders by the Municipality of Hanover, Cape Province, for the supply and erection of electrical plant and equipment, H.M. Senior Trade Commissioner in South Africa has now forwarded to the Department of Overseas Trade the drawings relating to the contract, and these are available for loan to interested United Kingdom firms on application to 35, Old Queen-street, S.W.1. The closing date for the receipt of tenders has been postponed for at least three weeks, and H.M. Senior Trade Commissioner has been informed that if firms find it necessary to apply for a further extension their requests will be given due consideration.

LAW REPORTS

KING'S BENCH DIVISIONAL COURT.

Before JUSTICES GODDARD and HILBERY.

DISPUTED ARBITRATOR'S AWARD ON COMPULSORY PURCHASE OF LAND.

De Trafford v. Corporation of Stretford.

In this case the plaintiff, Sir Humphrey Edmund de Trafford, the owner of a considerable area of land in Lancashire, applied by motion to set aside or remit to Mr. F. J. Kirby, an official arbitrator, his award under which Sir Humphrey would receive £10,750 for about 119 acres of land compulsorily acquired from him by the Corporation of Stretford.

Mr. P. R. J. Barry appeared for the plaintiff, and Mr. A. D. Gerrard for the Corporation of Stretford.

Mr. Barry said Sir Humphrey's case was that the arbitrator had failed to give effect to an arrangement during the proceedings that he would inform the parties of his valuations in accordance with certain alternative legal principles—viz., whether he took into account the effect upon a purchaser's mind that 22 acres of the land were zoned as an open space under the Corporation's planning scheme, and that since 1934 the whole area had been zoned for agricultural purposes. Sir Humphrey's contention was that neither of these facts affected the value of the land, which ought to be valued on its merits quite apart from town planning considerations.

Mr. Barry submitted that the arbitrator's failure to disclose the basis on which he reached his valuation deprived Sir Humphrey of an opportunity of having the award stated in the form of a special case.

Mr. Gerrard argued that there had been no breach of agreement by the arbitrator.

At the conclusion of the arguments Mr. Justice Goddard, in giving judgment, said he thought there might have been a misunderstanding. The best way, he thought, of dealing with the matter was to ask the arbitrator to state whether, in fixing the value of the land, he had taken into consideration town planning proposals and the Ministry of Health's refusal to over-rule the Corporation. If the arbitrator did so, he would be asked to state his award in the form of a special case, and the costs of the present motion would be costs in the special case. If, on the other hand, the arbitrator had not taken those considerations into account, the motion would be dismissed with costs.

Mr. Justice Hilbery concurred.

KING'S BENCH DIVISION.

Before MR. JUSTICE HILBERY.

ALLEGED NEGLIGENCE OF ELECTRIC SUPPLY CO. IN STREET EXCAVATIONS AND WORK.

James v. County of London Electric Supply Co., Ltd.

In this case the plaintiff, Mr. William Alfred James, a young man now 19 years of age (suing by his father as next friend), of 215, Underhill-road, East Dulwich, S.E., claimed to recover from the defendants, the County of London Electric Supply Co., Ltd., of 46-47, New Broad-street, London, E.C., damages for personal injuries which he sustained on October 4, 1935, through the alleged negligence of the defendants, their servants or agents. It appeared that at the time in question the defendants were making excavations and executing certain works in and about a public footpath in Barry-road, near the junction of Underhill-road, and on October 4 the plaintiff, who was a clerk in the City earning then £1 a week, in going along or across the road, slipped and fell beneath an oncoming motor omnibus; he sustaining injury from bruises, shock, etc., and by reason of which he was incapacitated from following his employment as a clerk. His case was that the defendants were liable for the accident in having left the kerbing of the footpath in an uneven and defective condition and covered with wet clay or other slippery substance, which caused him to slip and fall.

The defence was a denial of liability and of negligence.

The defendants said that they were at the time carrying out the works and making the excavations by virtue of powers conferred under the Camberwell Electric Lighting Order and the Electric Lighting Acts, 1882 and 1888, and the Acts amending the same. They denied that their servants or agents had acted wrongfully or negligently and that the injuries to the plaintiff were caused by no wrongful act of theirs, but were caused by the negligence of the plaintiff in crossing the road in a dangerous manner and not paying sufficient attention to what was going on or as to the condition of the road or pavement.

Mr. Sydney E. Pocock appeared for the plaintiff, and Mr. H. Heathcote-Williams for the defendant company.

At the conclusion of the evidence and the addresses of counsel, his lordship, in giving judgment, after stating the facts, said he was satisfied that the plaintiff ran across the road in front of the omnibus, which was on the move, and on reaching the kerb he turned round and faced the omnibus and fell into the road. The plaintiff alleged that his fall was caused by reason of the slippery clay which was lying about. He (the Judge) could not on the evidence come to the conclusion that that was the cause of the accident or that the plaintiff had established that his fall was caused by the slippery clay. However, in case the action was taken further, he thought it advisable to say that with regard to the defendant's plea that the accident was caused by the contributory negligence of the plaintiff in crossing the road without paying sufficient attention to what was going on and as to the condition of the road or pavement, he (the Judge) did not think that that was any answer to the plaintiff's case, because he had the right to expect that the footpath would be in the ordinary condition of safety and free from obstructions. However, in the circumstances, there must be judgment for the defendants with costs.

NEW CINEMAS

BISHOP AUCKLAND.—The contract for the steelwork for a cinema in Tenters-street has been placed with Messrs. Wright, Anderson and Co., Ltd., Gateshead, but the general building contract is not yet settled. The architect is Mr. J. Clayton, High-row-chambers, Darlington.

CHESTER.—The Gaumont-British Picture Corporation, Ltd., Film House, Wardour-street, W.1, propose interior alterations to the "Majestic" cinema in Brook-street. The architect is Mr. W. E. Trent, F.R.I.B.A., New Gallery House, Regent-street, W.1.

HENDON.—Odeon Theatres, Ltd., Cornhill House, Bennett's Hill, Birmingham, have acquired a site in Parson-street and Church-road for the erection of a cinema. The architect is Mr. Harry W. Weedon, A.R.I.B.A., 84, Colmore-row, Birmingham, and 7, Park-lane, W.1.

LEIGH.—Associated British Cinemas, Ltd., 30, Golden-square, W.1, have placed a contract with Messrs. J. Gerrard and Sons, Ltd., Pendlebury-road, Swinton, Manchester, for erection of a cinema in Spinning Jenny-street, to be known as the "Regal." Plans have been prepared by Mr. W. R. Glen, F.R.I.A.S., staff architect.

Technical Publications on Tin Research.

The International Tin Research and Development Council have issued two new reviews. The first (Series B, Number 6) deals with "The Wetting of Metals with Particular Reference to Tinning and Soldering," by E. J. Daniels, M.Sc., and D. J. Macnaughtan, F.Inst.P., and the other (Series A, Number 66) deals with "Measurement of the Thickness of Tin Coatings on Steel by a Magnetic and an Electromagnetic Method," by Messrs. Bruce Chalmers, B.Sc., Ph.D., W. E. Hoare, B.Sc., and W. H. Tait. Copies of these publications may be obtained free of charge from the International Tin Research and Development Council, 378, Strand, W.C.2.

INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

We do not undertake to reply to inquiries concerning proprietary materials.—ED.

QUESTIONS.

Heating Values.

SIR,—I should be glad to be advised as to the comparative heating values, weight by weight, of fuel oil, anthracite coal, and coke, for domestic heating and hot-water supply. I should also like to know whether these comparisons are on a practical level, or whether the comparison is influenced in any way by the comparative efficiencies of the systems.

ARCHITECT.

Safety Valves.

SIR,—Could you inform me whether the safety valve of a heating boiler should be affixed on the flow pipe, and whether its efficiency is lost when the main flow and return pipes have become badly furred?

SUPERVISION.

Plastering a Squash Court.

SIR,—We are building a squash court, and shall be glad if you will advise us what is recognised as the best plaster to finish the playing area with. It must, of course, be very hard and non-sweating.

DELA.

ANSWERS.

Concrete Pathway: Cure for Patchiness.

[ANSWERS TO "S. S.," NOVEMBER 12.]

SIR,—The method of paving described is somewhat unusual and likely to wear badly. Uniformity may be obtained by a liberal use of the wire brush, though this would have been more easily brought into use immediately after initial set. PATHS.

SIR,—Your correspondent does not state what percentage of spirit of salts (hydrochloric acid) was used, or whether it was used in its "raw" state, as a strong solution (40 per cent. S.G. 1.074) of spirits of salts is usually effective for removing very thin layers of cement if allowed to soak for 10 to 20 minutes. For removing heavy or thick layers of cement, score or cut through them with a scraper to allow solution to penetrate. Finally, agitate with a suitable brush and flush with water. Alternatively, well wet the patches to be treated and thoroughly rub them with pumice-stone, keeping the surfaces well wetted during rubbing. A. J. T. E.

Apportionment of Road Charges.

[ANSWER TO "F. G.," NOVEMBER 12.]

SIR,—A local authority may apportion road charges on the simple basis of frontage. It is a method beyond dispute and readily calculated, and therefore one frequently adopted to avoid subsequent disputes. It does, however, bear hardly on such situations as deep corner sites, and too lightly on sites on a re-entrant angle, where the actual road frontage is much restricted below the effective building width of the site. On this account many authorities make use of their powers to consider degree of benefit, although this arguable measure opens the door to many disputes. FRONTAGER.

Slates or Tiles?

[ANSWERS TO "DON," NOVEMBER 19.]

SIR,—Insufficient description about the building makes any decision one of difficulty. Slates on a roof of a factory adjacent to other buildings of a similar type might look quite well, but slates on a roof in the vicinity of tiles look incongruous. Then, again, the atmosphere might have a bad effect on the best of tiles.

The answer can only be given when one knows all the facts. G. W. H.

SIR,—There is little difference between tiles and slates, given the best quality in each

instance. The many different designs of both tiles and slates greatly reduce any disadvantages natural to them, and give them advantage when used under suitable conditions. Tiles have the added advantage that they can be coloured during manufacture. This cannot be done with slates, as they are a natural product, and although different varieties of slate have slightly different colours, they give little colour effect. With tiles the minimum slope is 35 deg., with slates 27 deg.; this, together with the design of the building, often decides which are to be used.

W. E. W.

Mortar Mixing: Machine or by Hand.

[Answers to "Mixer," November 19.]

Sir,—Some contracts specially say that mechanical mixers can be used for concrete or mortar. The mixture in both cases should be properly measured, and I consider machine-made mortar highly preferable; it could not be objected to, but the number of turns must be noted. G. W. H.

Electric Heating.

[Answer to "Consumer," November 19.]

Sir,—The allowance of heat usually made for warming rooms in residences, including the loss through the glass surface, is approximately three B.Th.U.'s per hour per cubic foot of space heated, which is equivalent to 0.00088 of an electric unit. The above allowance is based on a room temperature of 60 deg. F. when at 32 deg. F outside. If a temperature of about 65 deg. F. is required an allowance of one unit per 1.000 cubic feet of space heated should be found satisfactory.

If the glass surface exceeds that normally provided in a living-room a further allowance of 0.0088 units per square foot of surface per hour should be made to compensate for the extra heat loss. To determine the exact quantity of heat required for a given room heat loss calculations should be made in the usual manner, so that proper account may be taken of the transmission of heat through the various materials of construction, and other factors involved. F. B. T.

Foundations on Clay.

[Answer to "Clay," November 12.]

Sir,—If "Clay" would care to write to me through the Editor of *The Builder*, I should be very pleased to let him have further particulars of the vibrationless pile referred to, and also give him any advice upon his own particular problem of underpinning foundations. Foundation Specialist.

AN L.C.C. HOUSING ESTATE

The first portion of the L.C.C.'s Sumner Estate, Sumner-road, Camberwell, was opened on November 18. The Sumner Estate, which has an area of nearly ten acres, will comprise 521 flats (in 13 blocks, five storeys in height) with accommodation for about 2,470 persons. Five blocks, containing 217 flats of from one to five rooms, are now nearly ready for occupation. They will accommodate over 1,000 persons. A further four blocks are in course of erection, and it is anticipated that the remaining four blocks will shortly be commenced.

The estimated gross rents, including rates and water charges, of the flats in the first nine blocks are as follow, the net rents fixed by the Council being given in parentheses: one room, 5s. to 6s. 6d. (3s. 6d. to 4s. 9d.); two rooms, 7s. 9d. to 10s. 9d. (5s. 6d. to 7s. 9d.); three rooms, 10s. to 14s. (7s. 3d. to 10s.); four rooms, 12s. 3d. to 16s. (8s. 9d. to 11s. 6d.); five rooms, 15s. 6d. to 18s. (11s. to 12s. 9d.). Each flat will, in addition, contain a kitchen and separate bathroom. At the request of the Camberwell Metropolitan Borough Council, accommodation is being provided in one of the blocks for an infant-welfare centre, comprising waiting rooms, weighing rooms, a toddlers' room, rooms for doctors, and a tea-room, etc. A covered perambulator shelter and a children's playground are also being provided on the estate.

IN PARLIAMENT

Week-end Cottages.

Mr. De la Bere asked the Minister of Health whether he would consider taking some steps to prevent the turning of farm labourers' cottages into week-end houses, in view of the fact that this was detrimental to the agricultural community.

Sir K. Wood said that the decrease in the amount of accommodation available for the agricultural population through this cause was one of the matters dealt with in the recently published report of the Central Housing Advisory Committee. The Committee considered that the most effective remedy was the provision of further new houses to be let to agricultural workers at rents within their means, and he proposed to adopt their recommendation on this point. As regarded cottages at present controlled under the Rent Restrictions Acts, the tendency to which his hon. friend referred would no doubt be considered by the Departmental Committee at present investigating the working of those Acts.

Demolition of Old Cottages.

Mr. Keeling asked the Minister of Health whether old cottages, considered unfit for habitation, must be demolished in order to qualify for Exchequer subsidy any new houses built to receive the families displaced.

Sir K. Wood said the answer was in the negative. If, on the service of a formal notice under Section 11 of the Housing Act, 1936, the local authority obtained an undertaking to close the old cottage for human habitation until, in their view, it had been rendered fit for the purpose, the Exchequer subsidy was payable in respect of any new house provided for the family displaced, notwithstanding that the old house had not actually been demolished. The continuance of the annual Exchequer payments would not be prejudiced by the fact that the old cottage was subsequently reconstructed.

Rent Restriction.

Mr. Ammon asked the Minister of Health what opportunity was given to the Metropolitan boroughs to give evidence to the Committee on Rent Restrictions.

Sir K. Wood said that he understood that the Metropolitan Borough Standing Joint Committee were invited on the 9th July, 1937, to submit evidence to the Departmental Committee, and that the Departmental Committee were informed by letter, dated July 21, that instructions had been given to prepare the evidence which would be ready by the end of September. On October 12 the Departmental Committee were informed that the Standing Joint Committee were not able to give any evidence, owing to the time allowed them being inadequate for the purpose. Statements of evidence had, however, been received independently from the Metropolitan Boroughs of Bermondsey, Deptford and Fulham, and oral evidence covering the whole of the London area had been heard from the London County Council.

Gas-proof Houses.

Mr. Acland asked the Home Secretary what were the tests to be applied in order to decide whether or not the houses in any district were or were not suitable for use as shelters from the effects, other than direct hits, of explosive bombs: and would he give examples from the London area where he could consider the houses suitable and unsuitable, respectively.

Mr. G. Lloyd said that most reasonably well-built houses contain a room which could be made to give fair protection against blast and splinters from a high-explosive bomb falling some distance away: it was the problem of rendering houses gas proof which in certain localities was more likely to cause difficulty. These questions would be among those which the local authorities would have to consider when formulating their schemes for submission to his right honourable friend: until these schemes had been received and considered the information which would be necessary to answer the last part of the question would not be available.

Repairs to Houses of Parliament.

Mr. Viant asked the First Commissioner of Works if he would state the cost of the repairs of the stonework of the Houses of Parliament to the nearest practicable date; and could he give the anticipated date of completion?

Sir P. Sassoon said that the expenditure to September 30 on the repairs to the stonework of the House of Commons was approximately £437,500. The completion of the work was expected by March, 1942.

Banqueting Hall, Whitehall.

In reply to Mr. Hall Caine, Sir P. Sassoon, the First Commissioner of Works, said that no proposals had been made that the Royal United Service Institution should give up possession of the Banqueting House, Whitehall, but, so far as he was concerned, he could assure his hon. friend that, should the matter arise, no proposal for a change in the use of this most beautiful and historic building would be made without the fullest consideration being given to the present and future requirements of the Institution.

Overcrowding in Wales.

Captain A. Evans asked the Minister of Health if he would state the number of houses required for the relief of overcrowding in the different centres of Wales.

Sir K. Wood said that full particulars of the number of houses found to be overcrowded in each district were contained in the report on the Overcrowding Survey in England and Wales, which was published last year. An approximate estimate of the number of new houses required would be 12,000.

Reconditioning of Cottages.

Mr. R. Duckworth asked the Minister of Health whether, in view of the decision which he had reached in connection with the cottages at Newlyn, in Cornwall, he proposed to issue a circular to all local authorities indicating that a similar policy should be afforded in similar circumstances in their areas, with a view to preventing the unnecessary demolition of houses the owners of which were prepared to recondition them.

Sir K. Wood said he had recently communicated with local authorities with reference to the reconditioning of rural houses.

Mr. Bossom asked the Minister of Health in view of the fact that the preservation of many beautiful old cottages depended entirely upon the amount of money available for reconditioning and that the sum now available was often insufficient, if he would promote legislation or issue regulations increasing the sums available for this purpose where the cottages justified it.

Sir K. Wood said he was not aware that the grants available under the Housing (Rural Workers) Acts were insufficient for their purpose. He proposed to introduce legislation extending the time of operation of these Acts and hoped that the fullest use would be made of them.

Preservation of Ancient Buildings.

Mr. Bossom asked the Minister of Health whether, as many beautiful and historic cottages were now being destroyed which it would be possible to save if properly reconditioned, he would ask the county councils, the preservation societies, and the local panels of architects to prepare a list of the cottages which it was essential to preserve.

Sir K. Wood said he had frequently urged, and would continue to urge, upon local authorities the desirability of taking all practicable steps by way of publicity and proper survey to secure the reconditioning of cottages which could be made fit for human habitation, and he understood that such a list as his hon. friend had in mind was in course of preparation.

Mr. Bossom: Is the Minister aware that the list will not be finished for about ten years, and will not then cover the whole country?

Sir K. Wood: I cannot say how long the duration will be. I understand the work has been undertaken by the R.I.B.A., and I should think it would be a satisfactory means of dealing with the matter.

BALLAST, SAND & ALLIED TRADES ASSOCIATION

HALF-YEARLY GENERAL MEETING.

THE half-yearly general meeting of members of the Ballast, Sand and Allied Trades Association was held in the Philbeach Hall, at the Commercial Motor Transport Exhibition, Earl's Court, on Thursday, November 11.

Mr. A. J. Arnold (Joseph Arnold and Sons, Ltd.) was in the chair, supported by Mr. A. F. Shaw (Merton Engineering Co., Ltd.), and among those present were the following: Messrs. J. J. Bleach, of Haslemere; W. G. Boyer (William Boyer and Sons, Ltd.); W. Brett and N. Brett (Robert Brett and Sons, Ltd.); R. Sanders and R. Clarke (Buckland Sand and Silica Co., Ltd.); A. T. Burgess, of Tooting; R. F. Bacon (Wm. Cory and Son, Ltd.); D. M. Mingard (Danbury Sand and Ballast Co.); H. C. Froud (Henry Froud, Ltd.); J. Hall, J. R. Hall and H. E. Peirce (Hall and Co., Ltd.); W. D. Hall (Hall's (Wimbledon), Ltd.); H. E. Ford (Ham River Grit Co., Ltd.); C. A. Nichols (Hythe End Aggregates, Ltd.); B. Mott and S. G. Smith (Land Gravel Co., Ltd.); L. Reece, D. R. Ireland and A. J. H. Ashby (Lea Valley Sand and Ballast Pits, Ltd.); S. Steen (Longside Sand and Gravel Co.); W. A. Batterson (Ebenezer Mears and Son); C. Stubbings (Mid-Essex Pits); E. L. Stacy (North London Ballast and Sand Co., Ltd.); J. A. Patterson (Thomas Patterson and Son, Ltd.); F. W. Appleby (Peters and Barham, Ltd.); J. W. Drummond (Pickfords, Ltd.); W. Penfold (H. Sabey and Co., Ltd.); A. D. Berk (St. Albans Sand and Gravel Co., Ltd.); G. S. Hadfield (Sand and Shingle, Ltd.); H. L. Gilks (Send Gravel, Sand and Ballast Co.); B. Stone and A. Gray (W. H. Stoneman and Co.); W. A. Duke (Thames Ballast (Shepperton), Ltd.); A. J. Cunningham (Thames Sand and Gravel Co. (1935), Ltd.); P. T. Blanchett (Triple Tipping Transport, Ltd.); R. S. Brewis and I. F. Williams (Twickenham Gravel Co., Ltd.); S. H. Downes (Wiggins-Sankey, Ltd.); F. Wells (Wraysbury Sand and Gravel Co., Ltd.); S. J. Lindley (Holman Bros., Ltd.); E. R. Hillier (Priestman Bros., Ltd.); R. M. Waddell and C. Nugent (Wallace Carr and Co., Ltd.); and F. W. Tanton (Wrights Ropes, Ltd.).

Referring to the half-yearly report, the chairman said the membership had been well maintained, as had also the issue of loading-line plates and delivery tickets.

He referred to the Weights and Measures Act, 1936, and said that the Regulations under the Act has been published in March, and had been considered by the various bodies interested, and certain suggestions for alterations had been made. The section of the Regulations which was most likely to be altered was with regard to the actual loading-line indicator, and the conveyance note Although the matter was at the moment *sub judice*, he hoped that the suggestions put forward by this Association would be adopted, and if so, he considered that the Regulations under the Act would be acceptable to the industry as a whole.

The speaker stressed the necessity for a standard of measure in the trade, to be adopted immediately, if conditions were to be improved. Great care should be taken in the loading of vehicles so that the correct quantity was loaded, and that the quantities bought and sold should always agree. He referred to the affiliation of the B.S.A.T.A. to the British Road Federation, and said that at last the road transport industry had a really live Federation, and one that was doing a great deal of constructive work.

Reference was also made to the reversal by the Appeal Tribunal of the decision of the Metropolitan Traffic Commissioner in connection with the issue of " A " Contract licences. The speaker mentioned the reference in the King's speech at the opening of Parliament to the question of wages in the road transport industry, when it was said that this matter would be dealt with by an Act of Parliament. This should prove an important step towards the stabilisation of haulage rates, a matter which the Association had had under consideration for a long time.

After the unanimous adoption of the report, Mr. H. E. Peirce (Hall and Co., Ltd.) spoke of his visit to Germany with the German Roads Delegation. He called attention to the compliment which had been paid to the B.S.A.T.A. in being asked to send a delegate, adding that it was indicative that the Association was looked upon as representing the industry and that the industry was taking its place with the other large industries in the building trade.

Mentioning the impressive roads Germany was developing, Mr. Peirce then came to what he referred to as the serious aspect of the delegation and said that the construction of the German Autobahnen was carried out by a German motorways company which worked in close co-operation with the German Railways. The programme of the new motorways in Germany was between 5,000 and 6,000 miles, of which 1,243 miles would have been constructed by the end of the present year. The programme was said to have given employment to 250,000 men in the building material and machine industries.

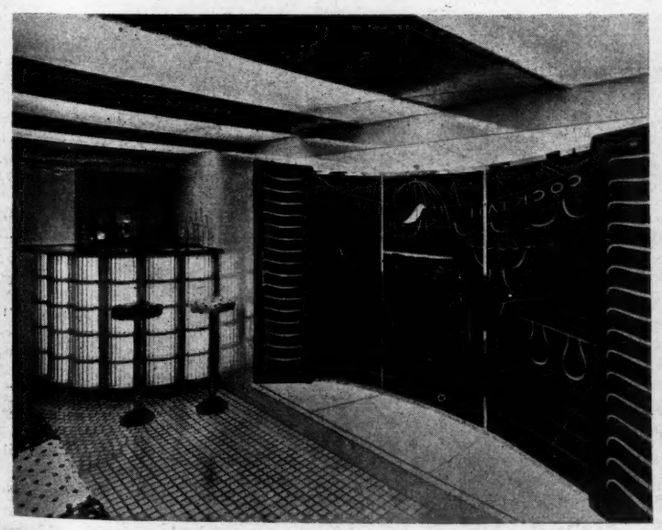
The total expenditure in 1935 and 1936 was £89,000,000. The allocation of the expenditure was put as 35 per cent. for earth work, etc.; 20 per cent. for buildings, bridges and other structures; 14 per cent. for roadway; 12 per cent. for right of way, purchase of land; 10 per cent for administration, and 9 per cent. for freights, interest and miscellaneous. Ninety per cent. of the construction of the motorways was in concrete, 5 per cent. in bitumen or asphalt, and the remainder was mainly stone setts. The whole system was double carriageways, 25 ft. wide, and at the outside of the carriageway a strip of black bitumen or asphalt, showing the difference between the actual highway and the edge of the road.

All the roads miss towns or villages; no cyclists or pedestrians were allowed, and a stop might be made on the roadway only in cases of adsolute necessity. In such cases the vehicle was to be drawn in as far as possible to the right, and for this purpose the verge might be used. Except for such a purpose it was forbidden to drive on the verges. No person might alight from the vehicle on the roadway. There was no ribbon development and no kerbs.

The roads were about 8 in. thick, and the engineers were not in favour of generally using steel reinforcement. Reinforcement was used in the concrete only when there was doubt about the subsoil. They insisted, however, on the dowel-bar joints. Mr. Peirce concluded by saying that the price of materials was about the same as in England.

Mr. G. S. Hadfield (Sand and Shingle, Ltd.) then spoke of the work of the Joint Committee of the B.S.A.T.A. with the Road Research Laboratory (Department of Scientific and Industrial Research) and the Ministry of Transport. This Committee, he said, was taking active steps to investigate the physical properties of gravels to find out the best conditions under which to use them for the construction of roads, and particularly for thin carpets.

Mr. D. M. Mingard (Danbury Sand and Ballast Co.), then spoke of the Council's desire to obtain the opinion of members of the Association on the question of the formation of a National Federation for the ballast and sand industry. He said that the bringing into force of the Regulations under the Weights and Measures Act, 1936, would mean that the B.S.A.T.A. had achieved its original object, and future work could be very much better done by a national, rather than a local, body. A resolution was adopted to the effect that the meeting approved in principle the proposed National Federation, and the principles of constitution as outlined by Mr. Mingard.



THE "GLASS AGE" EXHIBITION TRAIN.

These views were taken on the "Glass Age" Exhibition Train, which has been designed for Messrs. Pilkington Brothers, Ltd., and is touring the country. The view on the left is of the cocktail bar and that on the right of the bathroom. Full details and itinerary were given in our issue for November 5.

NEW BUILDINGS IN LONDON

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Where business representatives cannot be seen personally at this stage, this should be mentioned. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

ACTON. — ALTERATIONS. — And additions are to be made at the factory in Warple-way, W.3, of Messrs. Clement Talbot, Ltd. Plans are by Mr. James B. F. Cowper, F.R.I.B.A., 38, Bedford-square, W.C.1, and the building contract has been placed with Messrs. Robertson and Cameron, 16, Addington-square, Camberwell, S.E.5.

ACTON.—FACTORY.—Is to be erected in Bollo Bridge-road, W., for Messrs. Adelaide Grey, Ltd., 71, Avenue-road, W.3. The plans, which have been prepared by Messrs. Percy Pratt and Blount, 174, High-street, Acton, W.3, have been passed by the T.C.

ACTON.—ADDITIONS.—Messrs. D. Napier and Co., Ltd., engineers, are considering the erection of an additional storey to their large factory in The Vale, W.3. Preliminary plans have been prepared by the company's staff.

ACTON.—OFFICES.—Mr. F. E. Simpkins, F.I.A.A., Romney House, Marsham-street, S.W.1, is the architect for an office block in Victoria-road for the Dubilier Condenser Co. (1925), Ltd. Messrs. Allen Fairhead and Sons, Ltd., Sydney-road, Enfield, are the builders.

ACTON.—REBUILDING.—Mr. A. Y. J. Mayell, F.R.I.B.A., 173, Holland Park-avenue, W.11, is the architect for the rebuilding of the "Capel Arms" public-house in Osbourne-road, for Messrs. Charrington and Co., Ltd.

ACTON.—OFFICES.—Mr. Gervase Bailey, King's-buildings, Smith-square, S.W.1, is the architect for new offices and stock yard in Horn-lane for Messrs. Miles, Druce and Co., Ltd., 29, Upper Thames-street, E.C.4. The builders are Messrs. George Parker and Sons, Ltd., 124, Sumner-road, Peckham, S.E.15. All sub-contracts have been placed.

ACTON.—ADDITIONS.—Mr. W. Pye, 301, Mitcham-road, Tooting Junction, is the builder for alterations and additions to Priory Laundry, at 13, Packington-road, W.

BARKINGSIDE. — PUBLIC-HOUSE.—Messrs. Barclay, Perkins and Co., Ltd., Park-street, S.E.1, are to build a public-house, to be called the "Dr. Johnson." The contractors are Messrs. W. H. Gaze and Sons, Ltd., High-street, Kingston. Plans have been prepared by Mr. H. Reginald Ross, L.R.I.B.A., Chansitor House, Chancery-lane, W.C.2.

BECONTREE.—FACTORY.—The L.C.C. has recommended that, subject to the consent of the M.H., a site about 2 acres in extent, at Becontree, be sold to Messrs. A. Ornstin, Ltd., of 2, Plough-street, E.1, for the erection of factory premises.

BLOOMSBURY. — OFFICES. — Plans have been approved for a block of offices in Compton-street and Wakefield-street, W.C., for the Council of the Presbyterian Church of England. The architect is Mr. O. Maxwell Ayrton, F.R.I.B.A., 7, Grosvenor-street, W.1, and Messrs. E. H. Burgess, Ltd., 34, Grosvenor-gardens, S.W.1, are, we are informed, to be the contractors.

BURNT OAK.—WAREHOUSE.—Mr. Sidney W. King, 40, The Highlands, Edgware, is the architect for the British Freehold Investments, Ltd., for a warehouse, shop and flats over at 23, Parkway. A contract has been placed with the Edgware Garden Suburb Trust, Ltd., Oxford House, Parkway, Edgware, at £2,900.

CAMBERWELL.—REBUILDING.—And extension to premises in Peckham-road, S.E.15, are to be carried out by Messrs. Nox, Ltd., 55, New Bond-street, W.1, on behalf of the London Association for the Welfare of the Blind, 144A, Warwick-street, S.W.1. Plans are by Mr. Adrian C. S. Wheeler, L.R.I.B.A., 59, Windsor-road, Forest Gate, E.7.

CAMBERWELL. — HOUSE. — Mr. W. H. Watkins, F.R.I.B.A., Sun-buildings, 1, Clare-street, Bristol, and 11, Waterloo-place, London, S.W.1, is the architect for the erection of Ruskin Park House, Champion Hill, S.E. The quantities are by Messrs. Hawkes and Hawkes, and the building contract has been placed with Messrs. Whitehall Contractors, Ltd., Trafalgar House, S.W.1.

CHELSEA.—GRANDSTAND.—The directors of Chelsea Football and Athletic Co., Ltd., have under consideration the erection, on the site of the existing stand, of a large grandstand, with a double-tiered superstructure, at the Stamford Bridge Football Ground, Fulham-road, S.W. No definite details have been arranged so far.

CHIGWELL.—HOUSES.—The U.D.C. has placed provisionally a contract with Messrs. Stedman Bros., New North Works, New North-road, Barkingside, for erection of 20 houses in England's-lane, Loughton, 20 (off), Cascade-road, Buckhurst Hill, and 6 (off), Gravel-lane, Chigwell-row, at £21,565 17s. The plans are by the engineer and surveyor, Mr. G. Holbourn, A.M.InstC.E.

CLAPHAM. — REBUILDING. — Mr. W. G. Ingram, 4, Verulam-buildings, Gray's Inn, W.C.1, is the surveyor for the rebuilding of the "Perseverance" public-house in Nelson's-row, S.W.4. The brewers are Messrs. Wenlock Brewery Co., Ltd., Wenlock-road, City-road, N.1.

CLERKENWELL. — PREMISES.—Are to be erected in Banner-street, E.C.1, for which the contractors are Messrs. J. Cannon and Sons, Ltd., Allen-works, Church-street, N.16. The architects are Messrs. J. H. Storrar and Sons, Clock-chambers, London-road, Enfield.

CLERKENWELL. — FACTORY. — Messrs. W. H. Gaze and Sons, Ltd., High-street, Kingston, are the contractors for a factory, etc., in Roger-street, E.C., for Messrs. The Phonotas Co., Ltd., 125, High Holborn, W.C.1. The plans have been prepared by Mr. Frederick Baker, F.R.I.B.A., 4, Market-place, Kingston

A Snip.

FREEHOLD SITE

The vendors of the site in Lewisham, advertised in 2 previous issues of "The Builder" (Box No. 150, Nov. 5, and Box No. 251, Nov. 19), will reduce the Price to

£5,000

for a quick deal.

PLANS APPROVED FOR 48 FLATS ON TWO FLOORS ONLY

24: 3 rooms, K. & B. 24: 4 rooms, K. & B.

There is great demand for flats in this neighbourhood and these flats should let before the building is completed.

Site area about 57,000 sq. ft.

Two entrances.

Economically planned, the building cost is very low as the flats are designed on two floors only. On the basis of 30/- per week for the smaller and 35/- per week for the larger flats, there is a gross income of about

£4,000 p.a.

£18,000 Building Finance available at low rate.

Box 372, c/o "The Builder."

DEPTFORD. — GARAGES. — Messrs. Purvis and Purvis, 417, New Cross-road, are the architects for the erection of lock-up garages and a repair shop at the rear of 14-20, Harton-street and 9-23, Vanguard-street. The plans have been approved.

EALING.—FLATS.—Mr. W. C. Powell, 28, Cork-street, W.1, has prepared lay-out plans for the proposed erection of 56 flats at Gunnersbury-avenue, for Mr. H. J. Fraser.

EALING.—HOUSES.—For the erection of 12 houses in Carlyle-road, the T.C. has placed a contract with Messrs. Cain and Co., at £6,258 (in place of tender previously accepted).

EDGWARE-ROAD. — BANK. — Messrs. Martins Bank, Ltd., Water-street, Liverpool, have acquired a corner site for branch premises. The contract has been placed with Messrs. Mullen and Lumsden, Ltd., 41, Eagle-street, W.C.1. The plans have been prepared by Messrs. Elcock and Sutcliffe, FF.R.I.B.A., Adam House, Strand, W.C.2.

ENFIELD.—HOUSES.—Messrs. Wates, Ltd., builders, 1258, London-road, Norbury, S.W.18, have had plans prepared for 175 houses off Baker-street.

ENFIELD.—EXTENSIONS.—The U.D.C. are inviting tenders for extensions to the branch library at Enfield Highway. The architect is Mr. Frank Lee, L.R.I.B.A., A.M.Inst.C.E., 7, Little Park-gardens, Enfield.

EPSOM. — HOSTEL.—The Surrey C.C. has approved a revised scheme for new nurses' hostel at the County Hospital. Estimated cost is £82,500. The architect is Mr. F. Danby Smith, F.R.I.B.A., Parliament-mansions, Victoria-street, S.W.1. The quantity surveyor is Mr. T. N. C. Mumby, Parliament-mansions, Victoria-street, S.W.1.

FINCHLEY.—FLATS.—Messrs. George Reed and Sons, Ltd., builders, Enfield West Estate, N.14, have under consideration the erection of 144 flats and 105 houses on an estate at the corner of Falloden-way and the North Circular-road, N.2.

FINCHLEY.—SHOPS AND FLATS.—Messrs. Goodman-Price, Ltd., 38, Haggerston-road, E.8, are excavating a site at Lyttleton-road and Ossulton-way, Hampstead Garden Suburb, for the erection of a block of shops and flats above. The architects are Messrs. Marshall and Tweedy, FF.R.I.B.A., 96, New Cavendish-street, W.1, and the builders are Messrs. Geo. Moss (London), Ltd., Dorchester-road, Northolt Park.

GREENFORD.—FACTORY.—And offices are to be erected in Rowdell-road for Messrs. Aidas Electric, Ltd. Plans by Messrs. Percy Bilton Properties, Ltd., 113, Park-street, W.1.

GREENWICH. — EXTENSION. — At the annual meeting of the Miller General Hospital, Lord Queenborough, the president, announced that tenders were provisionally accepted for the erection of a new out-patients' department, to cost £41,000.

HAMMERSMITH-ROAD. — CONVERSION.—Messrs. Hillier, Parker, May and Rowden, 27, Maddox-street, W.1, have prepared the plans, and a contract has been placed with Messrs. E. D. Winn and Co., Ltd., 36, Wilton-place, S.W.1, for the conversion of 29-34, Latymer-court, Hammersmith-road, into shops and offices.

HARROW-ROAD.—FLATS.—The Paddington B.C. are recommending an agreement with the Grand Junction Co., Ltd., whereby the company, at its own cost and expense, will erect upon the site of 53, 55 and 57, Harrow-road, the Salvation Army Hall, Harrow-road, 25, 27, 29 and 31, Irongate Wharf-road and other adjoining lands, a block of flats.

HERTFORD. — BUILDING. — Mr. W. H. Hobday, F.R.I.B.A., 2, Millbank-house, Wood-street, S.W.1, is the architect for a new massage block at the County Hospital, and a contract has been placed with Messrs. Henry Norris and Son, Ltd., Priory-works, Hertford.

HOLLOWAY-ROAD. — GARAGE. — Messrs. Hillier, Parker, May and Rowden, 27, Maddox-street, W.1, are the architects for a new garage now being erected at the premises of Messrs. Jones Bros. (Holloway), Ltd. The building work is by Messrs. Jones Bros.' own building department.

HORNCHURCH.—Dwellings.—The U.D.C. are inviting tenders for 16 houses off Billet-lane. Mr. Douglas E. Hart, Surveyor, has prepared the plans.

HORNSEY.—Extensions.—The T.C. has sanctioned extensions to the joint isolation hospital at a cost to the Council of £1,050.

HORNSEY RISE.—Premises.—Messrs Patman and Fotheringham, Ltd., 15, Park-street, N.1, are now erecting new licensed premises to be known as the "Favourite." The work is for Messrs. Meux's Brewery Co., Ltd., Nine Elms-lane, S.W.8, from plans by Mr. W. F. Foster, F.R.I.B.A., 45, Nine Elms-lane, S.W.8.

HOUNSLOW. — Additions.—And alterations, to form a restaurant, etc., are to be made to premises at 17, Hanworth-road, to plans prepared by Messrs. P. Chase Gardener and Co., 295, High-street, Hounslow. No contracts placed.

ILFORD.—Extensions.—The T.C. are inviting tenders for extensions to offices, works, etc., for the Electricity Department at rear of the electricity showrooms and offices in the High-road. Mr. L. E. J. Reynolds, M.Inst. C.E., Borough Engineer, has prepared the plans.

ISLINGTON.—Depot.—The B.C. are inviting tenders for erection of the buildings at the Council's depot, Ashburton-grove, N.7.

LEE GREEN. — Hotel.—To be called the "Dover Patrol" is to be erected at Kidbrooke-way, S.E.3, for Messrs. Barclay, Perkins and Co., Ltd., Park-street, Southwark, S.E.1. The contractors are Messrs. Patman and Fotheringham, Ltd., 15, Park-street, Islington, N.1. The architects are Messrs. Nowell Parr and Son, 33, Sussex-place, South Kensington, S.W.7.

LEYTON. — Premises. — Messrs. A. J. Albert, Ltd., 701, Lea Bridge-road, Leyton, E.10, have secured the contract for new coachbuilding works for Messrs. Sully, Blackford and Hawkey, at 588, Lea Bridge-road, Leyton.

LEYTONSTONE.—Flats.—Plans have been prepared by Messrs. J. W. Codrington and Son, F.I.A.A., 488, Kingsland-road, Hackney, E.8, for a block of flats at Harrow Green, E.11. The builders are Messrs. Wood Bros., Vale-road, Forest Gate, E.7.

LONDON.—Building.—The Housing and Public Health Committee of the L.C.C. has recommended, at £657,800, a scheme for the development of the site, about 33 acres in extent, which the Council is purchasing for housing purposes in Tulse Hill, Lambeth, adjoining Brockwell Park. It is proposed that 965 flats—in 35 blocks, four storeys in height—shall be erected on about 28 acres of the site, and two playgrounds for the children. About five acres of the estate, at the northern end, will be reserved for a new school and other purposes, and for the construction of a new road to connect Appach-road with Tulse Hill. The same committee have also proposed the acquisition and clearance, at an estimated cost of £70,000, of a site in Camden-road, St. Pancras, for rehousing purposes. It will be possible to erect on the part of the area some 220 flats with accommodation for over 1,000 persons. The proposed redevelopment also provides for the construction of a children's playground and for a widening of Camden-road. The committee are to secure the clearance of two small slum areas in Evelyn-street, Deptford, involving the displacement and rehousing at a cost of approximately £7,500, of about 60 working-class persons.

MARYLEBONE. — Hostel.—Plans have been prepared by Messrs. Hastie, Winch and Kelley, 10, Henrietta-street, W.1, for a women's hostel at 47-49, Bendall-court, W. There will be accommodation for 40 persons, with dining- and recreation-rooms, etc., the building consisting of basement, ground and three upper floors. The quantity surveyor is Mr. R. T. Dadson, F.S.I., 43, Doughty-street, W.C.1. No contracts placed.

MARYLEBONE. — Rebuilding. — Messrs. Henekeys, Ltd., High Holborn, W.C.1, have acquired the "Angel" public-house, 37, Thayer-street, W.1, for reconstruction as an extension. The contract has been placed with Messrs. G. E. Wallis and Sons, Ltd., 18, York-buildings, W.C.2. The plans have been prepared by Mr. Ernest R. Barrow, F.R.I.B.A., Lennox House, Norfolk-street, W.C.2.

MIDDLESEX.—Building.—The C.C. has recommended the following tenders: Messrs. Spiers, Ltd., of Victoria-street, S.W.1, at £43,999, for alterations and enlargement of the Enfield Grammar School; Messrs. Hansard, Ltd., of Great Portland-street, W.1, at £37,535, for the further alteration and enlargement of the Wembley County School; Messrs. Taylor Woodrow Construction, Ltd., of Southall, at £19,515, for the erection of a swimming bath, county library branch, divisional education offices, juvenile employment bureau and caretaker's quarters in Bowes-road, Southgate. The Council has also recommended the County Architect to invite tenders from selected firms for Chiswick County School for Girls—alteration and enlargement; Greenford County School—erection of buildings; Acton—erection of new County School for Boys in Gunnersbury-lane; Willesden Technical College—enlargement; Hayes—erection of J.M. and I. School on Cranford Park Estate; and Hayes, Yeading Council (J.M. and I.) School—erection of new buildings for infants and conversion of existing buildings into junior mixed department. Provision of additional accommodation at the local County Offices at Willesden has been approved in principle, and tenders for the work are to be obtained. The County Architect is to prepare working drawings for further extension to Redhill County Hospital. Land fronting on to Mutton-lane, Potters Bar and adjoining the site of the Cranborne Council school is to be purchased for the erection of a maternity and child-welfare centre, school clinic and county library branch. Public notice is to be given of the intention of the C.C. to provide a public elementary school in or near Field End-road, Ruislip-Northwood, to accommodate 1,000 children. The tender of the Commercial Structures, Ltd., of Leyton, at £7,481, has been recommended for the erection of a county library branch at the corner of Christchurch-avenue and Kenton-lane, Kenton. The tender for a technical college at Ponders End, Enfield, to replace the Ponders End Technical Institute, has been accepted from the Kent and Sussex Building Co., Ltd., of Erith, at £87,486 15s. 2d.

OXFORD-STREET. — Alterations.—Are to be made to the premises at the corner of Oxford-street and Dean-street, W.1, for Messrs. Mayfair Shoes, Ltd., Rathbone-place, W.1. The contractors are Messrs. J. Bennett, Ltd., 93, Parkhurst-road, N.7. The architects are Messrs. J. S. Gibson and Gordon, 2, Devonshire-terrace, W.1.

PARK ROYAL.—Additions.—Messrs. Cerebos, Ltd., are to have their premises in Victoria-road, N.W.10, extended. Plans have been prepared by Mr. R. H. Radburn, 60A, High-street, Acton, W.3, and the contract placed with Messrs. Gee, Walker and Slater, Ltd., 3, Fitzmaurice-place, W.1.

PARK ROYAL —Office.—And store is to be erected in Park Royal-road, N.W., for Messrs. Cox and Danks, Ltd., from plans prepared by Messrs. Percy Pratt and Blount, 174, High-street, Acton, W.3.

PERIVALE. — Public-house. — Messrs. Barclay, Perkins and Co., Ltd., Park-street, S.E.1, are to erect a large hotel, to be called the "Abbey Hotel," in North Circular-road. The contractors are Messrs. Haymills (Contractors), Ltd., Hangar-lane, Ealing, W.5. The architect is Major H. Oliver, F.R.I.B.A., Donnington House, Norfolk-street, W.C.2.

PONDERS END. — Rebuilding. — Messrs. Barclays Bank, Ltd., Lombard-street, E.C.3, have approved plans for the rebuilding of their branch premises in High-street. Messrs. Sydney Tatchell and Geoffrey C. Wilson, FF.R.I.B.A., 32, Strand, W.C.2, are the architects.

ROMFORD.—Showrooms.—And offices are to be erected for the Romford and District Gas Co., in South-street. The plans have been prepared by Messrs. Crowe and Careless, AA.R.I.B.A., 74, Great Russell-street, W.C.1, and a building contract has been placed with Messrs. Baker, Hammond and Laver, Ltd., New-road Works, Rainham.

ST. JOHN'S WOOD. — Public-house. — The "Princess Royal" public-house at the corner of Circus-road and Cochrane-street, N.W.8, is to be rebuilt. The plans have been prepared by Mr. Robert Sharp, L.R.I.B.A., 13, Lower Belgrave-street, S.W.1. No contracts let.

ST. JOHN'S WOOD.—Flats.—Plans have been prepared by Mr. H. W. Binns, F.S.I., 23, Bloomsbury-square, W.C.1, for a block of flats at 76, Grove End-road, N.W. The scheme is in its early stages.

ST. JOHN'S WOOD.—Flats.—It is proposed to develop the site of 2-4, St. John's Wood-road, N.W., by a block of 29 luxury flats with a large garage in the basement. The architect is Mr. I. Schulz, A.R.I.B.A., 101, Alexandra-road, St. John's Wood, N.W.8. Tenders have not yet been invited.

SHOREDITCH. — Reconstruction. — The B.C. has approved plans for the part reconstruction of the "Cobden's Head" public-house, 176, Kingsland-road, E.2.

SOUTHWARK.—The L.C.C. are to enter into an agreement with the Royal Arsenal Co-operative Society, Ltd., with respect to 118, 120 and 122, Rodney-road, and 1, South-street, adjoining the Orb-street (No. 1) clearance area, for the erection of new premises. The Society's architect is Mr. E. W. Ackroyd, F.R.I.B.A.

SHOREDITCH HIGH-STREET.—Premises. —Messrs. Hall, Beddall and Co., Ltd., Pitfield-wharf, Waterloo Bridge, S.E.1, are now erecting new premises, for Messrs. Nicholls and Clarke, Ltd., from plans prepared by Mr. Frank Nicholls.

STEPNEY.—Rebuilding.—The L.C.C. are to enter into an agreement with Messrs. Charrington and Co., Ltd., Anchor Brewery, Mile End-road, E.1, with respect to the rebuilding of the "Ship and Bell" beer-house adjoining the Malay-street (No. 3) clearance area.

STEPNEY. — Rebuilding. — A warehouse premises in Cable-street, E.1, is to be rebuilt from plans by Messrs. Percy H. Clarke and Son, 5, Arundel-street, W.C.2. The builders are Messrs. R. Maskall and Son, 189, New North-road, N.1.

STEPNEY. — Rebuilding. — The Wenlock Brewery Co., Ltd., Wenlock-road, City-road, N.1, and the L.C.C. are to enter into an agreement with respect to the rebuilding of the "Jolly Sailor" beer-house adjoining the Malay-street (No. 3) clearance area.

STEPNEY. — Extensions. — Including a large gymnasium, dining-room and canteen, classrooms, etc., are to be made to the Toynbee Hall, Commercial-street, E.1, for the governors, and a contract is to be placed soon. The architect is Mr. Alister G. MacDonald, A.R.I.B.A., 14, John-street, W.C.2. The quantity surveyors are Messrs. George Corderoy and Co., 21, Queen Anne's-gate, S.W.1.

STOKE NEWINGTON.—Flats.—Mr. G. Alan Fortescue, F.R.I.B.A., 30, Bedford-square, W.C.1, is the architect for a block of eight flats to be erected at 54, Clissold-crescent. The building contract has just been placed with Messrs. W. Silk and Son, Ltd., 13, Homerton High-street, E.9.

STRAND.—Alterations.—H.M.O.W. have placed a contract with Messrs. Higgs and Hill, Ltd., 14, Godliman-street, E.C.4, for alterations to the west search room at Somerset House.

UPPER WOBURN-PLACE. — Building. — Messrs. Demolition and Construction Co., 74, Victoria-street, S.W.1, are now demolishing No. 8 prior to the erection of new premises.

UXBRIDGE.—Houses.—The tender of Mr. E. J. G. Morgan, Oxford-road, Uxbridge, at £19,653 16s. 6d., has been accepted by the U.D.C. for dwellings in Rockingham-road and The Lynch, Uxbridge, and Nelson-road and New-road, Hillingdon. The plans are by Mr. Wm. L. Eves, F.R.I.B.A., 54, High-street.

WALTHAMSTOW. — Offices. — Messrs. A. J. Albert, Ltd., 701, Lea Bridge-road, Leyton, E.10, have secured the contract for new offices for Messrs. Leyton Tyre and Rubber Co., Ltd., at 817, Lea Bridge-road.

WEST MOLESEY.—Schools.—The Surrey E.C. has issued instructions for the preparation of plans for a new central school and an infants' school on sites in the district. The architects are Messrs. Jarvis and Richards, FF.R.I.B.A., 8a, Lower Grosvenor-place, S.W.1.

WESTMINSTER. — Rebuilding. — The governors of the Gordon Hospital, Vauxhall Bridge-road, S.W.1, have decided to proceed with a further section of their rebuilding and extension scheme. This portion will cost about £40,000. The architects are Messrs. Young and Hall, 17, Southampton-street, W.C.1.

WHITTON. — Shops.—A further seven shops with flats above are to be erected in Percy-road, to the plans of Mr. George P. Bath, F.I.A.A., 45, Lincoln's Inn-fields, W.C.2. The contractors are Messrs. A. H. Ratcliff and Co., Ltd., 147, Green-lanes, Bowes Park, N.13.

WHITTON. — Garage. — The Hillingdon Estates Co., 29, Peterborough-road, Harrow, are to erect for themselves a garage, petrol-filling and service station, restaurant, offices, etc., in Whitton-avenue. The plans were prepared by Messrs. Swannell and Sly, High-street, Rickmansworth.

WHITTON.—Development.—The London Demolition Co., Ltd., Isleworth, are demolishing 16-24, Nelson-road, for Messrs. Best, Gapp and Partners, 5, Sloane-square, S.W.1, prior to the future development of the site.

WILLESDEN.—School.—The T.C. are inviting tenders for a new nursery school at Curzon-crescent. Mr. F. Wayman Brown, M.I.C.E., architect to the E.C., has prepared the plans.

WEMBLEY. — Showrooom.—The Council has passed plans by Mr. H. J. Green for a garage and showroom in East-lane.

WOOD GREEN. — Conversion.—Messrs. Brown and Warman, 24, Aldermans-hill, Palmers Green, N.13, are the architects to Messrs. John Knowles and Co. (London), Ltd., 38, King's-road, N.W.1, for the conversion of 65, Trinity-road into a showroom and stores with flat over. The contract has been placed with Messrs. Newby Bros., Ltd., Chase-road, Southgate, N.14.

WOOLWICH.—Extensions.—Messrs. R. J. O'Donoghue and F. W. Halfhide, 289, Regent-street, W.1, are the architects for extension to premises of the Pitter Gauge and Precision Tool Co., Brewer-street, S.E. Messrs. R. F. Peachy and Sons, Ltd., 5, Theobald's-road, W.C.1, are the builders.

Development Plans, Capetown.

Considerable extensions to Capetown are envisaged as the result of the publication of plans for the layout of 236 acres of reclaimed land which will be added to Capetown when the Table Bay harbour development scheme is completed. Adderley-street (the city's main street) will be doubled in length seawards, the new section on reclaimed ground being laid out as a wide boulevard leading directly to the mailship berth. The reclaimed land to be allotted to Capetown will roughly double the city's metropolitan area. Reclamation of the land will begin almost immediately. The city engineer and his town-planning assistant have been sent to Brazil to study the layout of Rio de Janeiro, where conditions and opportunities are very similar to those of Capetown. It is estimated that the cost of the scheme will be nearly £3,000,000, of which Capetown will contribute about £500,000. It is expected that most of the cost will be recovered by the sale of commercial and building sites in the reclaimed area.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. A dagger (†) denotes closing date for applications for particulars; other dates are those for the submission of tenders; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: T.C for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.W.B. for Metropolitan Water Board; B.S. for Borough Surveyor; B.E. for Borough Engineer; D.S. for District Surveyor; C. f r Clerk; T.C. for Town Clerk; C.E. for County Engineer; C.S. for County Surveyor; S. for Surveyor; E. for Engineer; (F.) for F.R.I.B.A.; (A.) for A.R.I.B.A.; (L.) for L.R.I.B.A.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, &c.

NOVEMBER 29.

† **Birmingham.**—School.—At Ridpool-rd., Yardley, for E.C. P. D. Innes, Chief Education Officer, Education Department, Council House, Margaret-st. Dep. £1 1s.

† **Bungay.**—School.—For East Suffolk C.C. County Architect, 9, Burlington-rd., Ipswich. Dep. £2 2s.

† **Edgware.**—Installation.—Of additions to existing panel and radiator heating domestic hot water, gas, steam and condense installations, cooking apparatus, together with extensions to distribution mains, at Redhill County Hospital, for Middlesex C.C. C. W. Radcliffe, clerk, Guildhall, Westminster, S.W.1. Dep. £2 2s.

† **Gloucester.**—Redecorations.—To 240 houses, for T.C. City Architect, Suffolk House, Greyfriars.

† **Hendon.**—Water Service Installation.—At Technical Institute, for Middlesex C.C. Secretary to E.C., "Y.2," 10, Great George-st., S.W.1. Dep. £2 2s.

NOVEMBER 30.

† **Birmingham.**—Library.—At Yardley-rd., South Yardley, for T.C. City Librarian, Radcliff-pl. Dep. £2 2s.

† **Bristol.**—Installation.—Of hot-water heating apparatus, etc., in connection with elementary school at Doncaster-rd., Southmead, for T.C. Edwin S. Hoare & Partners, 39, Broad-st.

* **Bristol.**—Additions.—To Hillfields Park school, Fishponds, for T.C. Bernard & Son, 26, Orchard-st., College, Bristol. Dep. £2 2s.

* **Bristol.**—School.—At Doncaster-rd., Southmead, for T.C. Messrs. Gleeds, 40, Corn-st. Dep. £2 2s.

DECEMBER 1.

Atcham.—Houses.—2, at Yockleton, for R.D.C. S., 24, St. John's-hill, Shrewsbury.

Atcham.—Houses.—12, at Bayston-hill, for R.D.C. S., 24, St. John's-hill, Shrewsbury.

Canvey Island.—Conveniences.—For U.D.C. C. R. Butcher, E. and S. Dep. £1 1s.

Dublin.—Presbytery.—At Augustinian Church, Thomas-st., for Very Rev. Thomas White, O.S.A., Prior. Morris & Kavanagh, quantity surveyors, 68, Harcourt-st. Dep. £3.

Eastbourne.—Gardener's Cottage.—In Manor Grounds, for T.C. B.E.

Enniscorthy.—Houses.—81, at Hospital-ln., for U.D.C. Sean Gallagher, T.C.

Erith.—Convenience.—In Belvedere recreation ground, Lessness Heath, for U.D.C. E. and S. Dep. £1 1s.

Ipswich.—Houses.—296, for T.C. B.S. Dep. £2 2s.

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* **Ipswich.**—Pavilion.—At Northgate School for Boys' playfields, for E.C. Johns & Slater, (F/A.), 8, Lower Brook-st. Dep. £2 2s.

Kilbeggan (Co. Westmeath).—Bonded Warehouse.—At Brusna Distillery, for John Locke & Co., Ltd. J. William O'Sullivan, Architect and E., 104, Grafton-st., Dublin, C.3. Dep. £5 5s.

Larne.—Reconstruction.—And extension to Whitehead P.E. School, for E.C. Walter Younge, secretary, Upper Main-st. Dep. £2 2s.

Littleover.—Demolition.—Of property, for Derbyshire C.C. C. G. Millican, C.S., County Offices, St. Mary's-gate, Derby.

Portsoy.—Extensions.—At Campbell Hospital, for Banff C.C. County Architect, Cullen.

Rothwell, Yorks.—Houses.—40, at Woodlesford estate, for U.D.C. F. Hartley, architect, Council Offices.

Selkirk.—Employment Exchange.—And telephone exchange at Chapel-st., for H.M.O.W. Architect, H.M. Office of Works, 122, George-st., Edinburgh, 2. Dep. £1 1s.

Southampton.—School.—At Northend-rd., Eastleigh, for C.C. A. L. Roberts, County Architect, Winchester. Dep. £1 1s.

Southampton.—C. and E. Office.—At King George V Docks, North Quay, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1.

Stoke-on-Trent.—Sub-station.—At Uttoxeter-rd., Meir, for T.C. M. C. Joynson Richards, architect, Campbell-chams., Campbell-pl. Dep. £2.

Sunderland.—Installation.—Of electric lighting in domestic science centre and gymnasium, 1 and 2, St. George's-sq., for T.C. G. S. McIntire, T.C.

Whitley and Monkseaton.—Bathing Station.—Conveniences and stores at Northern Promenade, for U.D.C. A. J. Rousell, S. Dep. £2 2s.

DECEMBER 2.

Barnsley.—Alterations.—To female ward block (2nd floor), St. Helen Hospital, Gawber-rd., for T.C. B.E.

Brierley Hill.—Shops.—4, with living accommodation, on Dudley Fields estate, Brockmoor, for U.D.C. R. H. J. Comber, E. and S., Albion-st. Dep. £2 2s.

Church.—Houses.—18, in Warwick-st., off Dill Hall-ln., for U.D.C. S. Dep. £2 2s.

Glasgow.—Houses.—78, and 4 shops at Provanmill extension, for T.C. T.C.

Hackney.—Welfare Centre.—At Elsdale-st., for T.C. B.E. and S. Dep. £2 2s.

Leyland.—Refencing.—To 29 houses, for U.D.C. S. Dep. £1 1s.

Marlborough.—Demolition.—Of property, building of end wall and retaining wall in New-rd., for Wilts C.C. H. S. Ganderton, C.S., Trowbridge. Dep. £2.

Middle Rasen.—Installation.—Of electric light in school, for Lindsey C.C. F. J. Birkbeck, Director of Education, County Offices, Lincoln.

Morley.—Interior Redecoration.—Of certain portions of Morley Hall Maternity Home and Bruntcliffe Isolation Hospital, for T.C. B.E.

Seaton Valley.—Houses.—160, on Blyth-st. estate, Seaton Delaval, for U.D.C. S., Council Offices, Shiremoor, Northumberland. Dep. £1 1s.

Slough.—Shelter.—In Cippenham recreation ground, for U.D.C. E. and S.

Slough.—Houses.—14, at Salt Hill and 3, at Mead-av., Langley, for U.D.C. E. and S.

Yeovil.—Houses.—4, at Limington, for R.D.C. Petter, Warren & Roydon Cooper (F/A.), Old Sarum, Yeovil.

DECEMBER 3.

East Suffolk.—School.—At Bungay, for C.C. County Architect. Dep. £2 2s.

Galashiels.—Houses.—One block, at Magdalater., for T.C. J. & J. Hall, architects.

Helensburgh.—Convenience.—For T.C. B.S.

Ireland.—Dwelling Houses.—2, and out-office, on Drumline; 9, and 9 out-offices on Sherlockstown; 1, and out-office on Gilltown; 11, and 12 out-offices on Newhaggard; 1, and out-office on Carrowloughan West, for Irish Land Commission. M. Deegan, secretary, Upper Merrion-st., Dublin. Dep. £1.

Pembrokeshire.—Works.—At Institutions, for C.C. O. T. Thomas, county architect, County Offices, Haverfordwest. Dep. £2 2s.

St. Austell.—Housecraft Room.—At school for girls, for Cornwall C.C. S. Pool (A.), County Hall, Truro. Dep. £1 1s.

Thornhill.—Branch Shop.—At Edge Top-rd., for Dewsbury Pioneers Industrial Society, Ltd. J. Conolly, Joinery Works, Huddersfield-rd., Ravensthorpe.

DECEMBER 4.

Blyth.—Houses.—For R.D.C. John W. Yallop, clerk, Rendham-rd., Saxmundham. Dep. £1 1s.

Boston.—Houses.—And bungalows, for R.D.C. W. R. Beardall, S. Dep. £2 2s.

* **Croydon.**—Admission Blocks.—At Mayday Hospital, Thornton Heath, for T.C. Berney & Son, architects, 33, High-st. Dep. £5 5s.

***Doncaster.**—Extensions.—To Oswin-av. school, for E.C. H. A. Hickson, architect, Hallcroft-chams., Hall Gate. Dep. £2 2s.

Falmouth.—Convenience.—At Prince of Wales Pier, for T.C. B.S.

Gravesend. — Installation. — Of heating and hot water at New North Court School, for T.C. B. Architect, 5, Woodville-terr. Dep. £1 1s.

Gravesend.—Installation.—Of electric lighting at New North Court School, for T.C. Borough Architect, 5, Woodville-terr. Dep. £1 1s.

***Kent.**—Installation.—Of generator, etc., for County Mental Hospital, Chartham Down, nr. Canterbury. W. H. Robinson (F.), Springfield. Dep. £5 5s.

Launceston.—Science Room.—At Horwell County School, for Cornwall C.C. S. Pool (A.), County Hall, Truro. Dep. £2 2s.

Limavady.—Cottages.—13 single and 150 double, for R.D.C. W. & M. Given, Coleraine. Dep. 10s.

Linton.—Additional Accommodation.—For nurses at Institution, for Cambridgeshire C.C. County Architect, Shire Hall, Cambridge.

Pontypridd.—Improvement.—Of low-pressure hot-water heating plant and providing a domestic hot-water supply at Hopkinstown School, for U.D.C. W. E. Lowe, Architect and S. Dep. £1 1s.

Reigate.—Internal Redecoration.—Of Council Chamber at Town Hall, for T.C. B.S. Dep. £1.

Sedgley.—Painting.—Of ironwork at Gospel End disposal works, Goldthorn estate pumping station, and Lower Gornal disposal works, for U.D.C. A. E. Dicks, S. Dep. 10s.

DECEMBER 6.

Basford.—Houses.—44, in Selston, for R.D.C. J. J. Ellis, E. and S. Dep. £2 2s.

Blackwell.—Room.—For cookery and manual at school, for Derbyshire C.C. H. Wilfrid Skinner, clerk, County Offices, Derby. Dep. £2 2s.

Bletchley.—Houses.—4, at Yards End, Western-rd., and 14 in North-st., for U.D.C. A. Bates, Concil Offices. Dep. £2 2s.

Bolsover.—Houses.—And roads, etc., at Bolsover Moor, for Chesterfield and Bolsover Water Board. Chas. Boldry, E., New Beetwell-st., Chesterfield. Dep. £2 2s.

Brighton.—Cottage.—At 15, Steine-gdns., for T.C. E. and S. Dep. £2 2s.

Cumberland. — Alterations. — To Park House, Alston, for E.C. John H. Hanghan (A.), County Architect, 4, Alfred-st. North, Carlisle. Dep. £1.

Enfield.—Extensions.—To branch library, Enfield-highway, for U.D.C. Frank Lee (L.), 7, Little Park-gdns. Dep. £2 2s.

***Erith.**—Re-flooring.—95 houses at Lesney Farm Estate, for U.D.C. E. and S. Dep. £1 1s.

Guildford.—Highways Depot.—At Bellfields, for T.C. J. W. Hipwood, B.S. Dep. £2 2s .

Guildford. — Alterations. — At Bedford-rd. depot, for T.C. J. W. Hipwood, B.S. Dep. £2 2s.

Guildford. — Reconstruction. — Of cattle market, for T.C. J. W. Hipwood, B.S. Dep. £2 2s.

Hartlepool. — Extensions. — And alterations to hospital. Secretary, Welburn House, Henry Smith's-ter. Dep. £5 5s.

Ilford. — Extensions. — Rear of electricity show-rooms and offices, for T.C. B.E. Dep. £5 5s.

Ince-in-Makerfield.—Cloakroom, etc.—And alterations to council offices, for U.D.C. P. Fairclough, S. Dep. £1 1s.

Lancaster.—Houses.—206 on Hare Runs Estate, for T.C. F. Hill, City E. and S. Dep. £1 1s.

Launceston.—Bungalow.—At St. Stephens, for L. Soper. C. W. Parkes Lees & Son, architects and surveyors.

Lydney.—Houses.—4, at Stockwell-ln., Aylburton, for R.D.C. G. J. Elliott, S., Highland Villa, Tutnalls, Dep. £2 2s.

Oldbury.—Conveniences.—And conversion of two classrooms into nursery room at Rounds Green school, for T.C. B.S. Dep. £2 2s.

Oxford. — Heating. — And hot water services at Isolation Hospital, The Slade, Cowley, for T.C. City Estates S. Dep. £3 3s.

Rochdale.—Lean-to Roof.—Over aerial ropeway loading station at Cleansing Depot, Entwisle-rd., for T.C. B.S.

Shirebrook.—Alterations.—And extensions at girls' secondary school, for Derbyshire C.C. H. Wilfrid Skinner, clerk, County Offices, Derby. Dep. £2 2s.

Shoreham-by-Sea. — Concreting.—And incidental works at 5 to 11, Swiss-gdns., for U.D.C. J. Dunn, S. Dep. £1.

Shrewsbury.—Demolition.—And reconstruction of 22, Castle-st., for Mrs. E. Harris. H. T. Richardson (L.), 15, Pride-hi'l. Dep. £1 1s.

***Smethwick.**—Houses.—64, for T.C. Roland Fletcher, B.E. and S. Dep. £2 2s

Southampton. — Decorations.—And repairs to Fordingbridge public assistance institution, for C.C. A. L. Roberts, County Architect, The Castle, Winchester.

Staines.—Demolition.—Of sewage disposal works at Short-ln., Stanwell, for U.D.C. D. C. Fidler, E. and S., Bridge-st.

Washington.—Privy Conversion.—For U.D.C. M. Anderson, clerk.

Wolverton.—Houses.—94 three-bedroom, 10 four-bedroom and 14 bungalows; also roads, sewers, at Windsor-st., for U.D.C. A. Baker, Architect and S., Church-st. Dep. £1 each contract.

DECEMBER 7.

Burton-upon-Trent.—Removal.—Of existing buildings and erection of transport offices and convenience at Guild-st., for T.C. B.E. and S.

Camelford.—Council Chamber.—And offices at Fore-st., for R.D.C. Andrew & Randell, architects, St. Austell. Dep. £2 2s.

Camelford.—Alterations.—And additions to three cottages at Camelford and Tintagel, for R.D.C. A. R. Hansford, Building S.

Castlederg. — Alterations. — And additions to premises for R.O.C. barracks, for Government of Northern Ireland. Ministry of Finance, Room 103, May-st., Belfast.

Ebbw Vale.—Extensions.—To county school, for Monmouthshire C.C. Colin L. Jones (L.), County Hall, Newport. Dep. £2 2s.

Liskeard.—Painting.—Of 1, West-st. and public hall, for T.C. B.S.

***Nottingham.**—Fencing.—For T.C. E. and S. Dep. £1.

Selsdon.—Houses.—28, for R.D.C. F. Bagley, C., Council Offices, Wombourn, nr. Wolverhampton. Dep. £2 2s.

Slough.—Houses.—14, adjacent to depot, Salthill, also one block of 3, on housing estate, Mead-av., Langley, for U.D.C. E. and S.

DECEMBER 8.

***Basingstoke.**—Bungalows.—6, at Hackwood-rd., for T.C. G. F. Paget, architect. Dep. £3 3s.

***Basingstoke.**—Houses.—18, at South Ham, for T.C. G. F. Paget, architect. Dep. £3 3s.

Burnley.—Houses.—258, on various housing estates, for T.C. B.E.

† Denbigh.—Extension.—And remodelling of Fron Goch Council School, for E.C. G. D. Wiles, County Architect, Acton Hall, Wrexham. Dep. £5.

Maidstone.—Cottages.—14, in Barming, for R.D.C. Thos. A. Busbridge, S. Dep. £2 2s

Mitcham. — Public Conveniences (3). — Mortuary and extensions to slipper baths, for T.C. B.E.

Reading.—Demolition.—Of brick chimney shaft and brick and timber buildings at Transport Depot, Mill-ln., for T.C. B.S. Dep. £1 1s.

Repton.—Houses.—50, for R.D.C. A. J. King, E. and S. Dep. £2 2s.

Tarvin.—Houses.—6 pairs, at Farndon, and 8 pairs, at Tarvin and Tattenhall respectively, also roads and sewers, for R.D.C. C. H. Coppack, architect, 3, Hunter-st., Chester. Dep. £2 2s.

DECEMBER 9.

***Cheadle.**—School.—At Brookhead, Councillor-ln., for Chester C.C. F. Anstead Browne (F.), County Architect, The Castle, Chester. Dep. £2 2s.

***Derby.**—Entrance.—And conveniences, Markeston Park, for T.C. C. H. Aslin (F.). Dep. £1 1s.

London, N.W.10.—Extension.—Of goods shed at Park Royal, for G.W. Railway Co. E., Paddington Station, W.2. Dep. £2 2s.

London, W.2.—Extension.—Of carriage shed at Old Oak Common, for G.W. Rly. Co. E., Paddington Station, W.2. Dep. £2 2s.

Nottingham.—Re-roofing.—Washing and loading sheds at Eastcroft depot, for T.C. R. M. Finch, City E. and S. Dep. £1.

Oxford. — Alterations. — And additions to P.O. engineering garage and stores, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Dep. £1.

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Sherborne.—Houses.—20, for the R.D.C. K. R. Blackmore, Building S. Dep. £1 1s.

Southend-on-Sea. — Switch House. — At Nazareth-grounds, for T.C. A. C. Johnson. Dep. £1 1s.

Southend-on-Sea.—Alterations.—To switch room, London-rd., for T.C. A. C. Johnson. Dep. £1 1s.

Southgate. — Refreshment Pavilion. — In Arnos Park, for T.C. B.E. and S. Dep. £2.

Stourbridge.—Demolition.—Of properties, for T.C. F. Woodward, B.E. and S.

DECEMBER 10.

Birmingham.—Garage.—At Whitacre pumping station, for T.C. A. E. Fordham, Edmund-st. Dep. £1 1s.

Chester. — School. — At Broadway, Cheadle, for C.C. F. Anstead Browne (F.). Dep. £2 2s.

Darfield.—Houses.—30 and 20 bungalows, and street works and sewerage to north of East-st. and west of North-st., for U.D.C. Dyson, Cawthorne & Coles, architects, 25, Regent-st., Barnsley.

Derbyshire. — Works. — At Dronfield grammar school, alterations and additions; Denby Smithy Houses C. school, extensions; Shirebrook Carter-ln. C. school, cloak and staff rooms; Staveley Hollingwood, new senior school, for C.C. County Architect, County Offices, Derby. Dep. £2 2s.

Edinburgh.—Installation.—Of heating apparatus to Stenhouse intermediate school, for T.C. City Architect.

Hemel Hempstead. — Conversion. — Of old post office, Alexandra-rd., to fire station, for T.C. B.E. Dep. £2 2s.

Inverness.—Painter.—And glazier works in connection with houses and cottages at South Kessock site, for T.C. W. Smith, architect, 52, High-st.

Newcastle. — Alterations. — And additions to Head Post Office, for H.M.O.W. Room 65D, Third Floor, H.M. Office of Works, London, S.W.1. Dep. £1.

***Northampton.**—Market (Fish and Meat).—In Bradshaw-st., for T.C. B.E. Dep. £3 3s.

DECEMBER 11.

Brierley.—Metal Windows.—In wood frames for proposed isolation ward, for Hemsworth and Wombwell Joint Hospital Committee. W. T. Lynam, architect, Market-chambs., Hemsworth, nr. Pontefract. Dep. £2 2s.

Carlton.—Laying-out.—Of King George V recreation ground, Standhill-rd., for U.D.C. J. A. West, S., Burton-rd. Dep. £2 2s.

Isle of Ely. — School. — At Outwell, nr. Wisbech, for C.C. R. D. Robson, architect, March. Dep. £5.

Laoighis.—Houses.—58, at Lamb's Field, Portarlington, and 42, in Ballycullenbeg, Mountmellick, for County Board of Health. Nicholas O'Dwyer, Veritas House, Lower Abbey-st., Dublin. Dep. £5 5s.

Marple.—Conveniences.—For U.D.C. E. and S. Dep. £2 2s.

***Newcastle-upon-Tyne.**—Houses.—66, at Flimby, Cumberland, for North Eastern Housing Assoc., Ltd. H. Oldfield (L.), 1, John-st., Workington. Dep. £3 3s.

DECEMBER 13.

Colchester.—Lavatories.—At East Bay Meadows, for T.C. H. Collins, B.E. Dep. £2 2s.

Dublin.—Flat Dwellings.—At Usher-st. and Cook-st., for T.C. City Treasurer, Exchange-bldgs., Lord Edward-st. Dep. £5 5s.

***Ealing.**—School.—At Wood-ln., for T.C. B.E. Dep. £3 3s.

Kirkcaldy.—Houses.—16 on Oswald-rd. site, for T.C. B.S.

Nottingham. — Extension. — Of laundry at City Isolation Hospital, for T.C. City E. and S. Dep. £2.

Ramsgate.—Convenience.—In Charlotte-passage to rear of Town Hall site, for T.C. B.S., 16, Albion-pl. Dep. £2 2s.

St. Austell.—Fire Station.—And conveniences, for U.D.C. E. D. Groves, E. and S. Dep. £2 2s.

Southport. — Police Headquarters. — Fire station, etc., for T.C. T.C. Dep. £5 5s.

Southport.—Installation.—Of accelerated hot-water, central heating hot-water and cold-water supply, and ventilation hydrants, etc., also electric lighting, power, telephone, clocks, special fire station equipment, etc.; new police headquarters, fire station, courts, etc., to be erected on "Woodlands" site, junction of Albert-rd. and Manchester-rd., for T.C. B.E. Dep. £2 2s.

***Southwark.**—Glazing.—At Penrose-st., garage, Walworth, for B.C. B.E. and S. Dep. £1 1s.

Wimborne Minster.—Houses.—26, on Leigh Park estate, for U.D.C. C. W. Prance, S. Dep. £2 2s.

DECEMBER 14.

Braintree.—Cottages.—144, for R.D.C. Financial Officer, St. Peter's-close, Bocking. Dep. £1 1s.

***Doncaster.**—Houses.—292, for T.C. B.E. Dep. £10 10s.

East Ham.—Alterations.—At Hart's Sanatorium, Woodford Green, for T.C. B.E., Town Hall, E.6. Dep. £3 3s.

Eliand.—Glasshouse.—At cemetery, Exley-ln., for U.D.C. T. Exley-Fisher, architect, Council Offices Dep. £1 1s.

Manchester.—Wrought Iron Fencing.—And gates at Dreyfus playing fields, Clayton, for T.C. City E. Dep. £1 1s.

Nuneaton. — External Painting. — Of Council House, Coton-rd., for T.C. R. C. Moon, B.S. Dep. £1 1s.

DECEMBER 15.

Monaghan.—Hospital.—At Mental Hospital, for Joint Committee of Management. Cullen & O'Brien, quantity surveyors, 48, Grafton-st., Dublin. Dep. £15.

Oundle — Reconditioning. — Old Town Hall, Market-pl., for U.D.C. E. and S. Dep. £2 2s.

Royton.—Lay-out.—Of Edge-ln. open space, for U.D.C. L. Cookson, E. and S. Dep. £1 1s.
***Willesden.**—Nursery School.—At Curzon-cres., for E.C. F. Wayman Brown. Dep. £5 5s.

DECEMBER 16.

Seaton Valley.—Council Offices.—In Avenue-rd., Seaton Delaval, for U.D.C. Cackett, Burns Dick & MacKellar, architects, 21, Ellison-pl., Newcastle-upon-Tyne. Dep. £2 2s.
Torquay.—Concrete Lining Wall.—At Chapel Hill, for T.C. Water E. Dep. £1 1s.

DECEMBER 17.

Croydon.—Admission Blocks.—At Mayday Hospital, Thornton Heath, for T.C. T.C. Dep. £5 5s.
Durham.—Alterations.—At High Usworth school and Winlaton school, for C.C. F. Willey (F.), 34, Old Elvet.
Edinburgh.—Installation.—Of domestic engineering service at new Government offices, Calton site, for H.M.O.W. E., H.M. Office of Works, 122, George-st., Edinburgh, 2. Dep. £1 1s.
Manchester.—Erection.—Of 221 flats, 12 shops, laundry, etc., at Gorton-ln., West Gorton, and 49 flats at Red Bank, Cheetham, for T.C. Housing Director. Dep. £2 2s. each.

DECEMBER 18.

Armagh.—Technical School.—At Bessbrook, for E.C. G. A. Henry, architect, 48a, High-st., Portadown. Dep. £3 3s.
Preston.—Moss Room.—At cemetery, for B.E.
***Shipston-on-Stour.**—Houses.—16, in various parishes, for R.D.C. E. H. Earp, 48, Henley-st., Stratford-on-Avon. Dep. £2 2s.
Spalding.—Operating Theatre Block.—And equipment (approximate cost £2,400), at Johnson Hospital. Thomas F. Trower (L.), architect, Elsom House, Broad-st.

DECEMBER 20.

***Esher.**—Sports Pavilion.—At Long Ditton recreation ground, for U.D.C. C. Dep. £2 2s.

DECEMBER 21.

Bridgend.—Customs Station.—And official residences, for Commissioners of Public Works. G. P. Fagan, Office of Public Works, Dublin. Dep. £1.
***Prudhoe.**—Houses.—6, at Mickley, Stocksfield-on-Tyne, for U.D.C. John A. Baty, Lloyds Bank-chambs., Hexham.

MATERIALS, &c.

DECEMBER 1.

East Sussex.—Road Materials.—For T.C. H. E. Lunn, C.S., County Hall, Lewes
Hebburn.—Old Whin Setts.—For U.D.C. Ernest Foxall, clerk.
Minehead.—Granite Chippings.—For U.D.C. A. G. Mansfield, clerk, 39, Blenheim-rd.

DECEMBER 4.

Bath.—Spatar Macadam.—And clean broken stone for T.C. City E.
West Sussex.—Tarred Macadam.—And special toppings, for C.C. County Hall, Chichester.

DECEMBER 6.

Dorset.—Granite.—For C.C. C.S., County Offices, Dorchester.
Sedgefield.—Cement.—For R.D.C. J. Stones, E. and S.

DECEMBER 7.

Axbridge.—Highway Materials.—For R.D.C. F. R. Burdge, C.

ENGINEERING, IRON AND STEEL.

DECEMBER 3.

Ayr.—Bridge.—Over River Girvan on Maybole-Crosshill-rd., for C.C. Geo. S. Barry, C.S.
Nottingham.—Widening.—Of bridge over L. & N.E. Rly., Hucknall-rd., for T.C. R. M. Finch, City E. Dep. £2.

DECEMBER 10.

Slaidburn (Yorks).—Steelwork.—For garage roof, floor beams and staircase at Stocks reservoir, for Fylde Water Board. Geo. F. Atkinson, E., Seftonst., Blackpool. Dep. £1 1s.

DECEMBER 11.

Bexhill.—Demolition.—Of 2 existing groynes and construction of 3 timber groynes on foreshore of De La Warr-parade, for T.C. B.S. Dep. £1 1s.

ROAD, SEWERAGE AND WATER WORKS.

DECEMBER 1.

Accrington.—Laying-out.—Of Peel Park, extended area, for T.C. H. Sanderson, B.E. Dep. £1 1s.
Canvey Island.—Street Works.—For U.D.C. C. R. Butcher, E. and S. Dep. £1 1s.
Chigwell.—Works.—In connection with main drainage of Grange Hill area, for U.D.C. Howard Humphreys & Sons, consulting engineers, 17, Victoria-st., S.W.1. Dep. £3 3s.
Dunstable.—Concrete Roads.—Soil sewers and ancillary works, for Land Settlement Assoc., Ltd. Secretary, Broadway - bldgs., Broadway, Westminster, S.W.1. Dep. £2 2s.
Enfield.—Service Road.—At Bellsmoor-ln. estate, for Middlesex C.C. C.E., 16, Gt. George-st., S.W.1. Dep. £2 2s.
King's Lynn.—Sewers.—And river outfalls and other appurtenant works at West Lynn, for T.C. J. C. Matthew, B.E.
Luton.—Street Works.—For T.C. J. W. Tomlinson, B.E. and S. Dep. £2 2s. each street.
Southampton.—Road Widening.—At Hoe, for C.C. A. C. Hughes, C.S., The Castle, Winchester. Dep. £1 1s.
Swansea.—Street Works.—For T.C. J. Richard Heath, B.E. and S.
Torpoint.—Reconstruction.—Of Treval-rd., for U.D.C. George Rodley, Council Offices. Dep. £2 2s.

DECEMBER 2.

Lambeth.—Rolled Asphalt.—For B.C. Osmond Cattlin, B.E., Lambeth Town Hall, Brixton Hill, S.W.2.
Leeds.—Road Works.—For T.C. Highways E., 155, Kirkstall-rd. Dep. £1 1s.
Rhyl.—Works.—At Carlisle-av., for U.D.C. S. Dep. £2 2s.
Rhyl.—Works.—At Knowles-av., for U.D.C. S. Dep. £2 2s.

DECEMBER 3.

Esher.—Road.—Across Green, for U.D.C. S. Dep. £2 2s.
Fife.—Laying.—Of fireclay pipes, for C.C. H. F. Hodge, C.E., County Offices, 34, Viewfield-ter., Dunfermline.
Guisborough.—Works.—In Gill-st., for U.D.C. R. H. Kilburn, S. Dep. £1 1s.
Potters Bar.—Improvement Works.—In Baker-st., for U.D.C. E. Carr, S., Wyllyotts Manor, Darkes-ln. Dep. £2.
Southampton.—Road.—On west side of Bargate, for T.C. B.E. Dep. £1 1s.
Welwyn Garden City.—Storm Water Pipe.—And other works, for U.D.C. J. Taylor & Sons, engineers, Caxton House, Westminster, S.W.1. Dep. £5.

DECEMBER 4.

Bentley-with-Arksey.—Sewer.—In Green-ln., Scawthorpe, for U.D.C. R. N. Penlington, Surveyor and Architect, Cooke-st. Dep. £2 2s.
Birkenhead.—Asphalt.—In Shrewsbury-rd., for T.C. B.E. and S.
Brackley.—Laying.—Of sewers and other incidental works in Eydon, for R.D.C. S. J. Rogers, S. Dep. £2 2s.
Bristol.—Foul Water Sewer.—From Wellington Hill to Southmead Hospital-rd., for T.C. City E. Dep. £2 2s.
Lewes.—Cast Iron Rising Main.—And pumping station, and incidental works, for T.C. C. T. Butler, B.S. Dep. £2 2s.
Orpington.—Street Improvement Works.—For U.D.C. T. Watson, E. and S., Bark Hart. Dep. £3 3s.
Thirsk.—Cast-Iron Main.—In Knayton, for R.D.C. D. H. Moore, E., 10, York-pl., Scarborough.
Wantage.—Stoneware Pipe Sewers.—And incidental works, for R.D.C. F. A. Shorey, clerk. Dep. £2 2s.
West Mersea.—Sewer.—And water main on Victoria Esplanade, for U.D.C. R. Stockdale, S. Dep. £1 1s.
Whitefield.—Making-up.—Of Philips Park-rd., Ross-av., Mere-av. and Park-close, for U.D.C. J. Knight, S. Dep. £2 2s.

DECEMBER 6.

Llanfairfechan.—Sea Defence Works.—For U.D.C. William Muirhead & Partners, engineers, Windsor House, Victoria-st., Westminster, S.W.17. Dep. £1 1s.
Plymouth.—Works.—In connection with Camels Head sewage purification works, for T.C. J. D. & D. M. Watson, engineers, 3, Central-bldgs., Westminster, S.W.1 Dep. £3 3s.
Ramsey.—Water Supply.—To houses, for U.D.C. V. J. Bateman, S., Whytefield-rd.
Rochester.—Street Improvement Works.—In Arethusa-rd., for T.C. City S. Dep. £1 1s.
Southampton.—Street Works.—For T.C. B.E. Dep. £2 2s.

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Stanley.—Unemployment Relief Works.—At East Castle, Greencroft, and South Medomsley, for U.D.C. Taylor & Wallin, engineers, 1, Saville-pl., Newcastle-on-Tyne, 1. Dep. £5.
Tiverton.—Water Supply Works.—For R.D.C. Parker Pearson & Ross Hooper, engineers, Dallas-chambs., Chippenham. Dep. £2.
Walton and Weybridge.—Making-up.—Of various streets, for U.D.C. E. A. Lister, E. and S., Council Offices, Walton-on-Thames.
Wembley.—Making-up.—Of two roads, for T.C. B.E. and S. Dep. £1 1s.

DECEMBER 8.

Erith.—Surface-water Sewer.—From North-rd. to Picardy Manorway, Belvedere, for U.D.C. J. H. Clayton, E. and S. Dep. £1 1s.
Middleton.—Making-up.—Of streets, for T.C. J. Pollard, B.E.
Monaghan.—Sewerage Extension.—To houses in Belgium-sq., and pipeline extension at Dawson-st., for U.D.C. P. McEntee, clerk. Dep. £2 2s.
Northolt.—Roundabout.—At junction of Wood End-ln., for Middlesex C.C. C.E., 16, Great George-st., S.W.1. Dep. £3 3s.
Repton.—Sewerage.—And sewage disposal, at Hatton, for R.D.C. Willcox, Raikes & Marshall, engineers, 33, Great Charles-st., Birmingham, 3. Dep. £5 5s.

DECEMBER 9.

Birmingham.—Sewers.—Culverts, etc., in Queslett-rd., Booths-ln., Aldridge-rd. and Kings-rd., Great Barr, for T.C. Herbert J. Manzoni, City E. Dep. £2.
Cheltenham.—Sewer.—At New Barn-ln., Prestbury, for R.D.C. E. H. Rosser, S., 14, Imperial-sq.
Southend-on-Sea.—Road Works.—For T.C. Robert H. Dyer, B.E. and S. Dep. £1 each street.

DECEMBER 10.

Plymouth.—Street Works.—For T.C. City E. Dep. £3 3s.

DECEMBER 11.

Blofield and Flegg.—Water Mains.—At Filley, for U.D.C. L. McRoberts, clerk, Council Offices, Acle.
Leek.—Works.—In connection with Ladderedge sewer, for U.D.C. John A. Gilchrist, E. and S. Dep. £1 1s.
***Newcastle-upon-Tyne.**—Roads.—And sewers at Flimby, Cumberland, for North Eastern Housing Assoc., Ltd. H. Oldfield (L.), 1, John-st., Workington. Dep. £2 2s.

Public Appointments.

NOVEMBER 29.

Derby.—Architectural Assistant.—For T.C. C. H. Aslin (F.).
Poplar.—Deputy Borough Engineer Surveyor.—For T.C. T.C.
Staffordshire.—Senior Architectural Assistants.—For C.C. K. L. Murray (F.).

NOVEMBER 30.

Sheffield.—Senior Assistant.—For T.C. W. Geo. Davies (F.), City Architect.

DECEMBER 1.

Leeds.—Assistant Clerk of Works (Temp.).—For T.C. J. Johnstone Jervis, 12, Market-bldgs., Vicar-ln.

DECEMBER 3.

Somerset.—Improver (Temp.).—For C.C. A. J. Toomer (F.), C.S., Taunton.
Somerset.—Architectural Assistant (Temp.).—For C.C. A. J. Toomer (F.), C.S., Taunton.

DECEMBER 4.

***Bedfordshire.**—Clerks of Works.—For C.C. J. B. Graham.
St. Marylebone.—Architectural Assistant.—For B.C. T.C.

DECEMBER 6.

Essex.—Three Architectural Assistants (Temp.).—For C.C. J. Stuart (F.), County Architect, Chelmsford.
Cheshire.—Teacher of Building Subjects.—For E.C. F. F. Potter.
***Nottingham.**—Architectural Assistant.—For T.C. R. M. Finch, City E. and S.
***Southampton.**—Two Architectural Assistants.—(Temp.).—For T.C. B.E.
***Southampton.**—Junior Quantity Surveying Assistant (Temp.).—For T.C. B.E.

DECEMBER 8.

***Bristol.**—Two Architectural Assistants (Temp.).—For T.C. M. O. McAuliffe.
***Huddersfield.**—Two Architectural Assistants; one Quantity Surveying and Engineering, and Surveying Assistants.—For T.C. B.E.
***Newcastle-upon-Tyne.**—Senior Architectural Assistant.—For E.C. Director of Education.

DECEMBER 11.

***Worcester.**—Architects.—For West Midlands Joint Board for the Mentally Defective. Clerk.

DECEMBER 13.

***Holland (Lincs).**—Architectural Assistant.—For C.C. H. C. Marris, clerk, Boston.

DECEMBER 14.

***Nottingham.**—Three Quantity Surveyors.—For C.C. County Architect.

NO DATE.

***London.**—Civil Engineering Assistants for Aden.—For Air Ministry, Secretary (W.9), Adastral House, W.C.2.
***London.**—Civil and Mechanical Engineers, Chief Superintendent, Royal Ordnance Factories.—(Advt. No. 182), Royal Arsenal, Woolwich, S.E.18.
***London.**—Architectural Assistants (Temp.).—For L.C.C. Architect, County Hall, Westminster Bridge.
***London.**—Assistant Quantity Surveyors, Assistants and Architectural and Engineering Assistants.—For Air Ministry, Secretary (W.9), Adastral House, W.C.2.

CURRENT AND PROPOSED BUILDING WORK*

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Where business representatives cannot be seen personally at this stage, this should be mentioned. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Alfreton.—Miners' Welfare Central Fund Committee propose pithead baths at Swanwick Colliery. Architect, J. H. Forshaw (F.), Romney House, Marsham-st., London, S.W.1.

Barnard Castle.—Durham C.C. approved scheme for providing smallholdings at £30,705, including £10,300 for new buildings. Mr. Carter, Shire Hall, Durham, architect.

Barnsley.—Catholic Authorities of St. Joseph's propose senior schools, at £23,000. Plans by Dyson, Cawthorne & Coles, Regent-st.

Birmingham.—Site in Waterloo-st., being cleared of old buildings on which it is proposed to erect block of offices. W. T. Orton, architect, Civic House, Great Charles-st.

Blaydon-on-Tyne.—Marshall, Tweedy & Bourn, 129, Pilgrim-st., Newcastle-on-Tyne, prepared plans for clubhouse, White City Stadium, for proprietors.

Bradford.—Plans for 2 substantial extensions to works of Allied Industrial Services, Ltd., been approved by T.C. Street Improvement and Buildings Committee.

Burton-on-Trent.—Miners' Welfare Central Fund Committee propose pithead baths at Church Gresley collieries. J. H. Forshaw, architect (F.), Romney House, Marsham-st., London, S.W.1.

Chester.—C.C. propose to engage consultant engineers for reinforced concrete work and piling foundations for new County offices. Estimated cost, £168,975. Plans by County Architect, F. Anstead Browne (F.), The Castle, Chester.

Clifton Without.—North Riding E.C. approved scheme for enlarging present school to accommodate a further 150 infants and juniors, and to build new senior school for 320. J. L. Coverdale, County Hall, Northallerton, architect.

Cumberland.—Mental Hospital Committee approved plans for extensions to County Mental Hospital at £173,295. H. E. Ayris, architect, Lowther-st., Carlisle.

Denaby.—Board of Management of Fullerton Hospital to carry out extensions, at £5,000.

Deptford.—B.C. approved: H. A. Scrase, 16, St. Helen's-pl., E.C.3, 1-storey workshop extension and a lavatory block at Excelsior Works, Rollins-st.

Dorking.—Surrey E.C. proposes to convert Wentworth Hall, High Ashurst, into residential school for physically defective children. Plans by Jarvis & Richards (FF.), 8a, Lower Grosvenor-pl., S.W.1.

Ealing.—Plans passed by T.C.: Noel Miller, Ltd. (builders, A. J. A. Taylor & Co., Ltd.), 19 houses, Boston-rd.; R. Lancaster & Sons, 30, Ealing-rd., Wembley, 20 houses, Runnymede-gdns., and Leavergdns.; Hillington Estate Co. (architects, Swannell & Sly, Rickmansworth), 35 houses, Castle-rd.; Gainsley & Ginsburg (architect, R. B. Rowell, Upper Richmond-rd., East Sheen), 5 shops and maisonettes over, Ruislip-rd.; Clayton Farm Estates (architects, Swannell & Sly, Rickmansworth), layout of 50 houses, Ruislip-rd. and Ealing-rd.

Eastbourne.—Workrooms and general offices in Lismore-rd., for Bobby & Co., Ltd. Architects George Baines & Son (F.), A.I.Struct.E., 121, Victoria-st., Westminster, S.W.1.

Fleetwood.—Junior and infants' school, estimated to cost £31,308, together with extensions to Grammar school, estimated at £18,618, to be carried out by County E.C.

Flint.—T. B. Gorst & Son, builders, propose development of Sixth-av. for houses.

Gateshead.—Plans approved for development of further 48 building sites on Chowdene estate, for Lord Ravensworth. Architects for estate are A. H. Fennell & Co., 16, West-st.—B.E. preparing provisional plans for general hospital at Sherriff-hill, for T.C.—Premises for Barclays Bank, Ltd., to be erected on Team Valley Trading Estate, by North-Eastern Trading Estates, Ltd. Architects, L. J. Couves & Partners, Carliol House, Newcastle-on-Tyne.—Domestos, Ltd., Quayside, Newcastle, to erect factory, Great North-rd., to plans by A. H. Fennell & Co., 16, West-st.—Plans approved for fire station to serve Team Valley Trading Estate, for North-Eastern Trading Estates, Ltd. Architects, L. J. Couves & Partners, Carliol House, Newcastle-on-Tyne.—Offices and stores are to be built in Hawks-rd. by Lumsden Machine Co., Ltd., Hawks-rd., to plans by their own architects.

Halesowen.—M.H. approved plans for extensions to North Worcestershire Isolation Hospital, at Haley Green. Plans by Folkes & Folkes, 34, Hagley-rd., Stourbridge. Engineers, Henry Lea & Sons, 158, Edmund-st., Birmingham, 2.

Hebburn-on-Tyne.—It is proposed to convert premises at corner of Carr-st. and Ellison-st. into social club for Progressive Club and Institute. Architects, G. R. Smith & Partners, Winchester-st., South Shields.

Hereford.—T.C. approved: Proposed amended lay-out plan for shops, for H. Lidster, per Bettington & Son; houses at Broomy Hill-rd. and Prince Edward-rd., for James Hiles, per G. W. Hiles.

Hornsey.—Plans passed by T.C.: Pavilion at Highgate Wood, for City of London Corporation.

Hull.—Morris de Metz (A.), architect, 13, Devonshire-ter., London, W.1, preparing plans for office and shop block, Jameson-st. (central).

Kettering.—Board of Management of Kettering Joint Hospital proposing additions to isolation hospital. Architects, Blackwell & Storry, Gold-st.-chambs.

Kiveton Park.—R.D.C. approved plans for warehouse, W. Ball, Laughton-rd., Dinnington.

Lancaster.—Board of Management of Bradford Cinderella Club propose extensions to Cinderella Holiday Home, Hest Bank. Architects, Walker & Collinson, 12, Exchange Bank-st.

Leigh.—George Shaw & Co., Ltd., Leigh Brewery, propose rebuilding "Eagle and Hawk" public-house, Chapel-st. Resident Architect, E. Frankland.

Littlehampton.—U.D.C. to erect café at Sunken Gardens site, at £10,000.

Liverpool.—Rev. C. T. D. Ellam proposes church hall, Long View, Farm estate, Huyton.—Baptist Association propose church hall on Page Moss-ln. Architects, J. E. Bladon & Son, 12, Preesons-row.—United Estates (Liverpool), Ltd., Huyton, propose 110 houses on Page Moss estates.—Milton Estates, Ltd., Queen's-dr., propose 88 houses, Thingwall Farm estate.—J. R. Ruddock, Scotland-rd., proposes 72 houses, Bowring Park estate.—J. W. Jones & Son, Ltd., 158, Allerton-rd., Wavertree, propose 7 shops, Huyton House estate, Liverpool-rd.

Liverpool.—T. Walker & Sons (Warrington & Burton), Ltd., brewers, 105, Duke-st., propose rebuilding "Brown Cow" Hotel, Palmer-st. Architect, A. E. Shennan, 17, North-st.—Sumner Engineering Co., Ltd., Fairfield-st., propose new works at Edgrove. Architect, H. C. Killender, 62, Dale-st.

London.—City Corporation recommended £400 for new ceiling, north-west staircase of Holborn Viaduct, also similar work over north-east and south-east stairs; and £300 for improved lavatory accommodation on premises.

London.—L.C.C. sanctioned borrowing of £7,906 by Stepney B.C. for Limehouse-fields improvement scheme.

Malpas.—Chester Diocesan Board of Finance propose senior school at Malpas, for accommodation for 200 scholars. Architect, C. Saxon (F.), Cathedral-chambs., St. Werburgh-st., Chester.

Manchester.—Fred Riley (L.), County-bldgs., 4, Cannon-st., prepared plans for extensions to "Empire Inn," Stockport-rd., Ardwick, for Groves & Whitnall, Ltd., Regent Brewery, Salford, 5.

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Middlesbrough.—M.T. to give 75 per cent. cost of scheme for bridging North Ormesby level crossing at £150,000.

Newcastle-on-Tyne.—Extensions to be carried out to brewery, Sandyford-rd., belonging to R. Deuchar, Ltd. S. H. Lawson, Emerson-chambs., architect.—J. J. Hedley, builder, Crawhall-rd., Newcastle-on-Tyne, to erect 25 houses in flats in Bosworth-gdns. and Debdon-gdns., etc.—Amended plans for West End secondary school been approved. R. G. Roberts, 18, Cloth Market, City Architect.

Newton-in-Makerfield.—School for juniors and infants to be erected, at £23,115, by County E.C.

North Riding.—E.C. approved £36,000 for school at New Earswick, and £28,450 for new girls' high school at Richmond. J. L. Coverdale, County Hall, Northallerton, architect.

Northumberland.—Plans prepared by County Architect and approved for schools at Bedlington, Belford and Morpeth, and for alterations and additions to Cramlington school.

Oldbury.—Titford Property Co., Ltd., New-rd., Langley, proposing factory and offices, Wolverhampton-rd.

Ormskirk.—Governors of the Grammar school to carry out additions, at £26,146.

Pendlebury.—T. E. Hamer, 222, Rake-ln., Clifton, proposes 60 houses in Rake-ln.

Portsmouth.—T.C. approved: Marchetti & Co., for Roman Catholic Diocese of Portsmouth, church, Bransbury-rd.

Poulton-le-Fylde.—Governors of Baine's Grammar school to carry out extensions, at £9,542.

Prescot.—B. Johnson, builder, Essonwood-rd., Whiston, prepared own plans for 7 shops and 28 houses, Essonwood-rd., Whiston, near Prescot.—Gornall & Wainwright, architects, 8, Hardshaw-st., St. Helens, preparing plans for extensions to sanatorium at Delph-ln. institution, for Board of Management. Cost, £4,000.

Preston.—Rev. H. Walton and Parochial Council of St. Matthew's Church, Beaconsfield-av., propose of church hall. Architect, Fred Howorth, 10, Theatre-st. Contracts not placed.

Ramsgate.—Governors of Ramsgate and District General Hospital appointed Stanley Hall, Easton & Robertson (FF.), 54, Bedford-sq., W.C.1, as architects in connection with scheme for enlargement of hospital buildings.

Romsey and Stockbridge.—R.D.C. to make application to M.H. for sanction to borrow £12,787 for 4 four-bedroomed and 8 three-bedroomed houses at Awbridge, and like number of dwellings at Braishfield, together with 4 four-bedroomed and 4 three-bedroomed houses at Broughton.

Rotherham.—Rotherham Co-operative Society, Ltd., Main-st., propose extensions to building of dairy in Norfolk-st. Plans in Architects' Department. Co-operative Wholesale Society, Ltd., 1, Balloon-st., Manchester.—Miners' Welfare Central Fund Committee propose pithead baths at Overcroft main colliery. J. H. Forshaw (F.), architect, Romney House, Marsham-st., London, S.W.1.

Sedgefield.—R.D.C. approved lay-out plans for 30 houses, by J. and S. Bernstain.

Sheffield.—T.C. approved elevation plans of St. Cecilia's Church, Parson Cross estate, for Church of England Authorities. Architect, K. B. Mackenzie (F.), Ablington, Bibury.—Members of Sheffield Amateur Sports Club, Abbeydale Park, propose pavilion at £6,750. Plans by R. Cawkwell, architect, 11, Broad Elms-ln.

Stanley.—U.D.C. propose 50 houses at Craghead. J. Routledge, S.

Tipton.—U.D.C. to readvertise for tenders for 14 houses on Walker-st.

Wembley.—S. to U.D.C. to submit scheme for 2-storey central pavilion and small sports pavilion at southern end of ground, at £700, and brick store at Church-ln. recreation ground.

West Hartlepool.—F. M. Dryden, Market-st., Newcastle-on-Tyne, been appointed architect for garage and depot for T.C.

Wigan.—Brown & Haigh, Wood-st. mills, propose additions to factory, Wood-st. and William-st. Architects, H. Walls & Son, Westwood Estate office.

DIARIES

Diaries at this time of the year are of topical interest.

Messrs. Charles Letts and Co., of London, have again placed a wide selection of diaries on the market. Diaries for the housewife, schoolgirl, schoolboy, Boy Scout, Girl Guide, motorist, fox-hunter, golfer, racegoer, gardener and farmer, rambler, and business man, are all included in their comprehensive range. Each contains a wealth of useful information and interesting facts. Such variety of size, binding, thickness, colour and price will be found in this firm's range for 1938 that it is difficult for any need not to be met, nor interest unprovided for. Messrs. Charles Letts' Diaries make excellent Christmas and New Year presents. They may be obtained through any newsagent or bookseller.

* See also List of Contracts Open.

** **In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. List of abbreviations on page 996.**

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st FEBRUARY, 1937.

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.]

	Crafts-men.	Lab-ourers.
Aberavon	1/7	1/2½
Aberdare	1/6½	1/2
Abergavenny	1/6½	1/2
Abingdon	1/5½	1/1½
Accrington	1/7	1/2½
Aldeburgh	1/3	11½
Aldershot	1/5	1/0½
Alfreton	1/7	1/2½
Alnwick	1/6½	1/2
Altrincham	1/7	1/2½
Amble	1/6½	1/2
Amersham	1/5½	1/1½
Ammanford	1/7	1/2½
Andover	1/5	1/0½
Ardingley	1/5	1/0½
Arundel	1/5	1/0½
Ascot	1/5	1/0½
Ashby-de-la-Zouch	1/5½	1/1½
Ashford (Kent)	1/4½	1/0½
Ashford (Middlesex)	1/7	1/2½
Ashington	1/6½	1/2
Ashstead	1/7	1/2½
Ashton-under-Lyme	1/7	1/2½
Aylesbury	1/5	1/0½
Aylsham	1/4	1/-
Bagshot	1/5	1/0½
Banbury	1/5	1/0½
Barnsley	1/7	1/2½
Barnstaple	1/5	1/0½
Barrow-in-Furness	1/7	1/2½
Barry	1/7	1/2½
Basingstoke	1/5	1/0½
Bath	1/6	1/1½
Batley	1/7	1/2½
Beaconsfield	1/5½	1/1½
Beccles	1/3½	11½
Bedford	1/6	1/1½
Berkhamsted	1/4½	1/0½
Berwick	1/6	1/1½
Beverley	1/7	1/2½
Bexhill-on-Sea	1/5	1/0½
Bideford	1/5	1/0½
Biggleswade	1/4½	1/0½
Billericay	1/4½	1/0½
Birchington	1/4½	1/0½
Birkenhead	‡§1/8½	¶
Birmingham	1/7	1/2½
Bishop Auckland	1/6½	1/2
Bishops Stortford	1/5½	1/1½
Blackburn	1/7	1/2½
Blackpool	1/7	1/2½
Blyth	1/7	1/2½
Bognor Regis	1/5	1/0½
Bolton	1/7	1/2½
Bournemouth	1/6	1/1½
Bracknell	1/5	1/0½
Bradford	1/7	1/2½
Bradford-on-Avon	1/4*	1/-
Braintree	1/5	1/0½
Brentwood	1/6½	1/2
Bridgwater	1/5	1/0½
Bridlington	1/6½	1/2
Brighouse	1/7	1/2½
Brighton	1/6	1/1½
Bristol	1/7	1/2½
Broadstairs	1/4½	1/0½
Bromsgrove	1/6	1/1½
Buckley	1/7	1/2½
Bungay	1/3	11½
Burnham-on-Crouch	1/3½	11½
Burnley	1/7	1/2½
Bursiem	1/7	1/2½
Burton-on-Trent	1/7	1/2½
Bury	1/7	1/2½
Bury St. Edmunds	1/4½	1/0½
Buxton	1/6½	1/2
Byfleet	1/5½	1/1½
Cambridge	1/6½	1/2
Canterbury	1/4½	1/0½
Cardiff	1/7	1/2½
Carlisle	1/7	1/2½
Carnforth	1/7	1/2½
Castleford	1/7	1/2½
Caterham	1/7	1/2½
Chard	1/4*	1/-
Chatham	1/5½	1/1½
Chelmsford	1/5½	1/1½
Cheltenham	1/5½	1/1½
Chepstow	1/6	1/1½
Chertsey	1/6	1/1½
Chester	1/7	1/2½
Chesterfield	1/7	1/2½
Chichester	1/5	1/0½
Chorley	1/7	1/2½
Cirencester	1/4½*	1/0½
Clacton	1/5	1/0½
Cleveleys	1/7	1/2½
Clitheroe	1/7	1/2½
Cobham (Surrey)	1/6	1/1½
Colchester	1/6	1/1½
Colwyn Bay	1/6	1/1½
Congleton	1/6½	1/2
Coventry	1/7	1/2½
Cranbrook	1/4½	1/0½
Cranleigh	1/5	1/0½
Crawley	1/5	1/0½
Crewe	1/6	1/1½
Cromer	1/4	1/-
Crowborough	1/5	1/0½
Cuckfield	1/5	1/0½
Darlington	1/7	1/2½
Darwen	1/7	1/2½
Daventry	1/5½	1/1½
Deal	1/4½	1/0½
Denbigh	1/5½	1/1½
Derby	1/7	1/2½
Devizes	1/3½*	11½
Dewsbury	1/7	1/2½
Didcot	1/5	1/0½
Diss	1/3½	11½
Doncaster	1/7	1/2½
Dorchester	1/4½*	1/0½
Dorking	1/5½	1/1½
Dover	1/4½	1/0½
Dovercourt	1/5	1/0½
Driffield	1/5½	1/1½
Droitwich	1/6	1/1½
Dudley	1/7	1/2½
Dunstable	1/5	1/0½
Durham City	1/7	1/2½
Eastbourne	1/6	1/1½
E.Glam.(Mon.Val.)	1/6½	1/2
East Grinstead	1/5	1/0½
Edenbridge	1/5	1/0½
Ely	1/3½	11½
Epping	1/7	1/2½
Exeter	1/6†	1/1½
Exmouth	1/5	1/0½
Fakenham	1/3½	11½
Falmouth	1/5½	1/1½
Fareham	1/6	1/1½
Faversham	1/4½	1/0½
Felixstowe	1/5½	1/1½
Filey	1/5½	1/1½
Fleetwood	1/7	1/2½
Flint	1/6½	1/2
Folkestone	1/4½	1/0½
Frinton-on-Sea	1/5	1/0½
Frome	1/4*	1/-
Gainsborough	1/6	1/1½
Gateshead	1/7	1/2½
Gillingham (Kent)	1/5½	1/1½
Glossop	1/7	1/2½
Gloucester	1/6†	1/1½
Godalming	1/5	1/0½
Goole	1/7	1/2½
Gosport	1/6	1/1½
Grantham	1/5½	1/1½
Gravesend	1/6½	1/2
Great Yarmouth	1/5	1/0½
Grimsby	1/7	1/2½
Guildford	1/5	1/0½
Guilsborough	1/5½	1/1½
Halifax	1/7	1/2½
Hanley	1/7	1/2½
Harpenden	1/5½	1/1½
Harrogate	1/7	1/2½
Hartlepools	1/7	1/2½
Harwich	1/5	1/0½
Haslemere	1/5	1/0½
Hastings	1/5	1/0½
Hatfield	1/6	1/1½
Haywards Heath	1/5	1/0½
Hednesford	1/6½	1/2
Hemel Hempstead	1/6	1/1½
Henley-on-Thames	1/5	1/0½
Hereford	1/5*	1/0½
Herne Bay	1/4½	1/0½
Hertford	1/6	1/1½
Heysham	1/7	1/2½
Hitchin	1/5½	1/1½
Hoddesdon	1/6	1/1½
Holt (Norfolk)	1/3	11½
Horley	1/5	1/0½
Horsham	1/5	1/0½
Horwich	1/7	1/2½
Huddersfield	1/7	1/2½
Hull	1/7	1/2½
Hunstanton	1/3½	11½
Huntingdon	1/4	1/-
Ilfracombe	1/5	1/0½
Ingatestone	1/5	1/0½
Ipswich	1/6	1/1½
Isle of Thanet	1/4½	1/0½
Isle of Wight	1/4	1/-
Keighley	1/7	1/2½
Kenilworth	1/7	1/2½
Kettering	1/6½	1/2
Kidderminster	1/6	1/1½
King's Lynn	1/4½	1/0½
Kirkham	1/7	1/2½
Knowle	1/6½	1/2
Lancaster	1/7	1/2½
Leamington	1/6½	1/2
Leatherhead	1/6	1/1½
Leeds	1/7	1/2½
Leicester	1/7	1/2½
Leighton Buzzard	1/4	1/-
Letchworth	1/5½	1/1½
Lewes	1/5	1/0½
Lichfield	1/6	1/1½
Lincoln	1/7	1/2½
Littlehampton	1/5	1/0½
Liverpool	‡§1/8½	¶
Llandudno	1/6	1/1½
Llanelly	1/7	1/2½
London		
12 m. radius	1/8½*	1/3½
12-15 m. radius	1/8*	1/3
Long Eaton	1/7	1/2½
Longton	1/7	1/2½
Loughborough	1/7	1/2½
Louth	1/5½	1/1½
Lowestoft	1/5	1/0½
Luton	1/6½	1/2
Macclesfield	1/6½	1/2
Maidenhead	1/5½	1/1½
Maidstone	1/5½	1/1½
Malvern	1/5½	1/1½
Manchester	1/7	1/2½
Manningtree	1/3½	11½
Mansfield	1/7	1/2½
March	1/4	1/-
Margate	1/4½	1/0½
Market Harborough	1/6	1/1½
Matlock	1/5½	1/1½
Melton Constable	1/3	11½
Melton Mowbray	1/6	1/1½
Merthyr Tydfil	1/6½	1/2
Middlesbrough	1/7	1/2½
Middleton	1/7	1/2½
Middlewich	1/6	1/1½
Milford Haven	1/5	1/0½
Morecambe	1/7	1/2½
Morley	1/7	1/2½
Mundesley	1/4	1/-
Nantwich	1/6	1/1½
Nelson	1/7	1/2½
Newark-on-Trent	1/6	1/1½
Newbury	1/5	1/0½
Newcastle-on-Tyne	1/7	1/2½
Newcastle-u-Lyme	1/7	1/2½
New Forest	1/4	1/-
Newmarket	1/5	1/0½
Newport, Mon.	1/7	1/2½
Newport Pagnell	1/5	1/0½
Northampton	1/7	1/2½
Norwich	1/6½	1/2
Nottingham	1/7	1/2½
Nuneaton	1/7	1/2½
Oakham	1/5½	1/1½
Oldham	1/7	1/2½
Ormskirk	1/7	1/2½
Oxford	1/6½	1/2
Oxted	1/5½	1/1½
Paignton	1/6½	1/2
Peterborough	1/6½	1/2
Plymouth	1/7†	1/2½
Pontefract	1/7	1/2½
Pontypridd	1/6½	1/2
Portsmouth	1/6	1/1½
Port Talbot	1/7	1/2½
Preston	1/7	1/2½
Pulborough	1/5	1/0½
Ramsgate	1/4½	1/0½
Reading	1/6	1/1½
Redditch	1/6	1/1½
Redhill	1/5½	1/1½
Reigate	1/5½	1/1½
Retford	1/5½	1/1½
Rickmansworth	1/6½	1/2
Ripon	1/5½	1/1½
Rochdale	1/7	1/2½
Rochester	1/5½	1/1½
Rugby	1/7	1/2½
Saffron Walden	1/3½	11½
St. Albans	1/6½	1/2
St. Helens	1/7	1/2½
St. Neots	1/4	1/-
Salisbury City	1/4*	1/-
Salisbury Plain	1/4*	1/-
Sawbridgeworth	1/5	1/0½
Saxmundham	1/3	11½
Scarborough	1/6½	1/2
Scunthorpe	1/7	1/2½
Selby	1/7	1/2½
Sevenoaks	1/5½	1/1½
Sheerness	1/4½	1/0½
Sheffield	1/7	1/2½
Shipley	1/7	1/2½
Shoeburyness	1/6½	1/2
Shoreham	1/6	1/1½
Shrewsbury	1/6	1/1½
Sittingbourne	1/4½	1/0½
Skegness	1/6	1/1½
Sleaford	1/5½	1/1½
Slough	1/6	1/1½
Southampton	1/6	1/1½
Southend-on-Sea	1/6½	1/2
Southport	1/7	1/2½
South Shields	1/7	1/2½
Spalding	1/4½	1/0½
Stafford	1/6½	1/2
Staines	1/6	1/1½
Stamford	1/5½	1/1½
Stevenage	1,5½	1/1½
Stockport	1/7	1/2½
Stockton-on-Tees	1/7	1/2½
Stoke-on-Trent	1/7	1/2½
Stourbridge	1/6½	1/2
Stourport	1/6	1/1½
Stowmarket	1/3½	11½
Stratford-on-Avon	1/5½	1/1½
Stroud	1/5½†	1/1½
Sunderland	1/7	1/2½
Sutton Coldfield	1/7	1/2½
Swaffham	1/3	11½
Swanage	1/5*	1/0½
Swansea	1/7	1/2½
Swindon	1/5½*	1/1½
Tamworth	1/6½	1/2
Taunton	1/5	1/0½
Tenterden	1/4½	1/0½
Tewkesbury	1/5½*	1/1½
Thetford	1/3½	11½
Thorpe Bay	1/6½	1/2
Todmorden	1/7	1/2½
Tonbridge	1/5½	1/1½
Torquay	1/6½	1/2
Totnes	1/5†	1/0½
Trowbridge	1/4*	1/-
Truro	1/4	1/-
Tunbridge Wells	1/5½	1/1½
Uppingham	1/5½	1/1½
Uttoxeter	1/5½	1/1½
Wakefield	1/7	1/2½
Walsall	1/7	1/2½
Walsden	1/7	1/2½
Walton-on-Naze	1/5	1/0½
Ware	1/6	1/1½
Warminster	1/4*	1/-
Warrington	1/7	1/2½
Warwick	1/6½	1/2
Wellingborough	1/6½	1,2
Wells (Norfolk)	1/3	11½
Welwyn	1/6	1/1½
Welwyn Gar. City	1/7	1/2½
West Bromwich	1/7	1/2½
Westclif-on-Sea	1/6½	1/2
Weston-super-Mare	1/6	1/1½
Weybridge	1/6	1,1½
Weymouth	1/4½*	1/0½
Whitby	1/6	1/1½
Whitstable	1/4½	1/0½
Widnes	1/7	1/2½
Wigan	1/7	1/2½
Wigton	1/5½	1/1½
Willington	1/6½	1/2
Wilmslow	1/7	1/2½
Winchester	1/5	1/0½
Windermere	1/5½	1/1½
Windsor	1/6	1/1½
Wisbech	1/4	1/-
Witham	1/5	1/0½
Woking	1/5½	1/1½
Wokingham	1/5	1/0½
Wolverhampton	1/7	1/2½
Woodbridge	1/4	1/-
Worcester	1/6	1/1½
Workington	1/5½	1/1½
Worksop	1/6	1/1½
Worthing	1/5	1/0½
Wrexham	1/6½	1/2
Wroxham	1/4½	1/-
Wycombe	1/5½	1/1½
Wymondham	1/3½	11½
Yeovil	1/5†	1/0½
York	1/7	1/2½

* Painters 1d. less than other Craftsmen. † Painters ½d. less than other Craftsmen. ‡ Plasterers 1/9.

¶ Tradesmen's Labourers 1/3½. Navvies and General Labourers 1/3.

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland see page 1003

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—5 ft. deep	per yard cube	8	0
Add if in clay	" "	1	0
Add for every additional depth of 5 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	3
Do. to sides of excavation, including shoring	" "	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundations 1 to 6	per yard cube	24	0
Add if in underpinning in short lengths	" "	5	0
Add if in floors 6 in. thick	" "	2	0
Add if in beams	" "	2	6
Add if aggregate 1 : 2 : 4	" "	8	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	1	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	26	0	0
Add if in stocks	"	6	0	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	1	5	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

		s.	d.
Neat flat struck or weathered joint	" "	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—

		s.	d.
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	0	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	5	9

SUNDRIES.

		£	s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	0	11
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, etc., with all necessary fire bricks	"	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	" "	9	6
Three-quarter-inch on flats in two thicknesses	" "	6	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	0

MASON.

		s.	d.
York stone templates fixed	per foot cube	12	9
York stone sills fixed	" "	22	0
Bath stone and all labour fixed	" "	10	9
Beer stone and all labour fixed	" "	15	0
Portland stone fixed	" "	16	6
Grey Forest of Dean stone, fixed	per foot cube	15	0
Do. do. templates, fixed	" "	11	6
Do. do. sills, fixed	" "	20	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	6
Do. 20 in. × 10 in. do. do.	"	75	0
Do. 24 in. × 12 in. do. do.	"	77	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	4	0
Do. joists	" "	4	6
Do. roofs, floors and partitions	" "	5	3
Do. trusses	" "	6	9

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	32/-	38/-	47/-	70/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	50	0
Do. to beams	per foot super	0	8
Centre for arches	" "	1	6½
Gutter boards and bearers	" "	1	0½

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.	—	41/-	49/-	58/-
Do. tongued and grooved	"	—	46/-	55/-	67/-
Do. matchings	"	42/-	47/6	—	—
Moulded skirtings, including backings and grounds	per foot super	1/4	1/7	1/9	2/3

SASHES AND FRAMES.		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	9
Two do. do. do.	" "	2	0
Add for fitting and fixing	" "	0	2
Deal cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double-hung, double hung with pulleys, lines and weights, average size		3	3

DOORS.		1¼"	1½"	2"
Two-panel square framed	per foot super	2/1	2/3	2/5
Four-panel do.	" "	2/4	2/6	2/9
Two-panel moulded both sides	" "	2/6	2/9	2/11
Four panel do. do.	" "	2/9	2/11	3/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	12	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per foot super	1/7	1/8	1/11
Deal shelves and bearers	" "	1/2	1/4	1/7
Add if cross-tongued	" "	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/-	2/3	2/8	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housing for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per foot run	0	9
Mahogany handrail, average 3 in. × 3 in.	" "	5	6
Add if ramped	" "	11	0
Add if wreathed	" "	22	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/0
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	22	0
Plain compound girders	"	25	6
Do. stanchions	"	28	6
In roofwork	"	34	6

RAINWATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/3	1/4	1/10	1/11
Ogee do. do.	"	1/5	1/6	2/1	2/9
Rainwater pipes with ears	"	1/7	2/1	—	—
Extra for shoes and bends	each	3/3	4/6	—	—
Do. stopped ends	"	1/3	1/7	2/0	3/0
Do. nozzles and angles	"	2/7	3/0	4/2	4/8

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	46	0
Do. do. flats	"	45	0
Extra labour and solder in coated cesspools	each	6	0
Welt joint	per foot run	0	4
Soldered seam	" "	1	6
Copper nailing	" "	0	3

	½"	¾"	1"	1¼"	1½"	2"	4"
Lead overflow ...per ft. run	10½	1/3	1/9	2/1	2/6	3/2	—
" service "	1/4	1/11	2/7	3/7	4/4	5/9	—
" soil "	—	—	—	—	—	—	7/9
Bends in lead pipe, each	—	—	—	—	2/-	2/3	5/6
Wiped solder joints "	2/-	2/6	2/9	3/3	3/6	4/3	6/-
Lead traps and cleaning screws "	—	—	—	9/-	10/-	13/-	—
Bib cocks and joints "	6/6	9/6	—	—	—	—	—
Stop cocks and joints "	11/6	14/6	18/6	—	—	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	6
Do. and set with Sirapite	" "	2	3
Do. and set with Keene's Cement	" "	3	0
Add saw lathing	" "	1	4
Add metal lathing	" "	2	4
(Not including hangers or runners, etc., for suspended ceilings.)			
Portland cement screed	" "	1	1
Do. plain face	" "	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	4	6

GLAZIER.

		s.	d.
24-oz. sheet plain	per foot sup.	0	7
26-oz. Do.	" "	0	8
Obscured sheet	" "	0	10
⅛-in. rolled plate	" "	0	9½
¼-in. rough rolled or cast plate	" "	0	10½
¼-in. wired cast plate	" "	1	2

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	7½
Knotting and priming	" "	0	7
Plain painting, 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	8
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece 2/- to 4/-		

*These prices apply *to new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Act, and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

PRICES CURRENT OF MATERIALS*

Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry.

CHANGES OF THE WEEK: Lead drops by 10s.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads:

	£ s. d.
Best Stocks	4 15 0
Second Hard Stocks	4 8 0

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
"Phorpres"	*2 6 3	Flettons, B'lin'se	3 4 0
Flettons at King's Cross	*2 6 3	Best blue Pressed Staffs.	8 6 6
Do., grooved for Plaster.	*2 8 3	Do., Bullnose	8 16 6
		Blue Wire Cuts	7 4 0
White Midhurst Facing London site)		Bricks (delivered	4 0 0
"Phorpres" Whites (King's Cross)			3 11 3
"Phorpres" Rustic Facings (King's Cross).			*3 6 3

Best Stourbridge Fire Brick:—

2½ in.	7 15 0	3 in.	8 15 0

* Delivered to site in W.C. district, 4/3 extra per 1,000.

GLAZED BRICKS—

Best White		D'ble Str'tch'rs	32 10 0
Ivory and Salt Glazed		D'ble Headers	29 10 0
Stretcher.	24 0 0	One side and two ends.	33 10 0
Headers	23 10 0	Two sides and one end	34 10 0
Quoins, Bullnose and 4½ in.		Splays and	
Flats	30 10 0	Squints	31 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½" " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

	s. d.	
Thames Ballast	7 3	per yd.
Pit Ballast	6 3	" "
Pit Sand	7 9	" "
Washed Sand	8 3	" "
¾ in. Shingle	7 3	" "
¾ in. Broken Brick	11 3	" "
Pan Breeze	8 3	" "

delivered 2 miles radius Paddington.

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable):—

	£ s. d.
4 ton loads and upwards site. Per ton	1 19 0
1 ton to 4 tons site	2 1 0
Alongside Vauxhall in 80-ton lots	1 15 0
"Ferrocrete" Rapid Hardening Cement:—	
4 ton loads and upwards site	2 5 0
1 ton to 4 tons site	2 7 0
Alongside Vauxhall in 80-ton lots	2 1 0

NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett, if returned in good condition within three months, carriage paid.

"Aquacrete" Water Repellent "Blue Circle" Cement, 30/- per ton extra on ordinary "Blue Circle" Portland Cement prices.

"Colocrete" Nos. 1 and 2 Coloured Rapid Hardening Portland Cement in 1-cwt. paper bags free (non-returnable) in 1-ton lots and upwards site 3 6 0

"Snowcrete" White Portland Cement in 1-cwt. paper bags free (non-returnable)

1 ton and upwards site	8 15 0
Super Cement (Waterproof) paper bags free	3 11 0
Roman Cement	6 15 0
Parian Cement	6 0 0
Keene's Cement, White	6 0 0
" Pink	5 12 6

Cementone Colours for cement according to tints per cwt. from £2 16 0.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 2 0	Sirapite, Coarse	3 10 6
" White	3 12 6	" Finish	3 18 6
Pioneer	3 10 6		
Super Carbo	2 7 6	4-ton loads & over London Area, paper bags free.	
Carbo Setting	2 12 6		
Best Ground Blue Lias Lime	1 17 6	Grey Stone Lime	2 2 0
		Chalk Lime	2 2 0
Granite Chippings	1 12 0	Hair per cwt.	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carr, paid.

Stourbridge Fireclay in sacks 37s. 0d. per ton at rly. dep.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 10½
BEER STONE—RANDOM BLOCK— Free on rail at Seaton Station, per ft. cube.	2 3
Delivered free on rail Nine Elms, S.R. per ft. cube	3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.	
PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 5
Do. do. delivered on road waggons as above stations, per ft. cube	4 6
White basebed, 3d. per ft. cube extra. NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.	

HOPTON-WOOD STONE—

	s. d.
F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb.	14 0
Sawn two sides	22 6
HOPTON-WOOD STONE— Sawn three or four sides	27 9

YORK STONE, BLUE.—*Robin Hood Quality.*

Delivered at any Goods Station, London.	
6 in. sawn two sides landings to sizes (under 30 ft. super) Per ft. super	5 0
6 in. rubbed two sides, ditto "	5 6
3 in. sawn two sides slabs (random sizes) "	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) "	1 6½
1½ in. to 2 in., ditto "	1 3½

HARD YORK—

Delivered at any Goods Station, London.	
Scappled random blocks. Per ft. cube	6 3
6 in. sawn two sides landings to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto, "	6 1½
4 in. sawn two sides slabs (random sizes) "	3 1½
3 in. ditto ditto "	2 5
2 in. self-faced random flags. Per yd. super	7 6

CAST STONE.

Delivered in London area in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 × 11.	£28 10	3 × 6.	£23 10
4 × 9.	28 10	3 × 11.	27 10
4 × 8.	25 10	2 × 11.	27 10
4 × 7.	25 10	3 × 9.	24 10
3 × 8.	23 10	2½ × 9.	24 10
3 × 7.	23 10	3 × 4½	23 10
2½ × 7.	23 10	3 × 4.	23 10

PLANED BOARDS.

1 × 11.	£28 10	1 × 9.	£26 10

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
⅜	18/-	1¼	30/-
½	21/-	1½	37/6
1	23/6		

TONGUED AND GROOVED FLOORING.

Inches.	per sq.
1	24/-
1¼	31/-
1½	38/6

MATCHING (BEST).

Inches.	per sq.
⅝	19/-
¾	21/-
1	27/6

ins. BATTENS.	s. d.
¾ × 2 per 100 ft.	2 8

SAWN LATHS.

	s. d.
Per bundle	2 5

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube	0 13 0
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube	0 16 6
Dry Cuba Mahogany, per ft. cube	1 1 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube.	0 10 6
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. 4 7 0 to	5 10 0

HUDDERSFIELD
Building Society

Experience has shown that the arrangements made by the Huddersfield to assist occupier borrowers have given the utmost satisfaction, and the service rendered has been greatly appreciated by builders' clients.

Write for information to The Huddersfield Building Society, Britannia House, 203, Strand, London, W.C.2, or to the Head Office, Britannia Buildings, Huddersfield. Andrew Stewart, C.A., Managing Director.

WHEN YOU INVEST—A HOUSE IS BEST

SLATES.

First quality slates from Penryhn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	31 5 0	18 by 10	16 10 0
22 by 12	26 5 0	18 by 9	14 17 6
22 by 11	23 12 6	16 by 10	14 7 6
20 by 12	23 2 0	16 by 8	11 6 0
20 by 10	20 15 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. Per 1,000 f.o.r. London.

Best machine-made tiles from Broseley or Staffordshire district.	£4 2 6
ditto hand-made ditto	4 17 6
Ornamental ditto	5 2 6
Hip and valley tiles (per dozen) { Hand-made	0 8 6
{ Machine-made	0 8 0

METALS.

	£ s. d.
JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON— R.S. Joists, cut and fitted.	£17 10 0
Plain Compound Girders	20 10 0
" " Stanchions	22 10 0
In Roof Work	27 10 0

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	18 5 0	⅝ in. to ⅞ in.	16 15 0
⅜ in.	17 5 0	1 in. to 2½ in.	16 5 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Standard Wrot. Mild Steel Tubes and Tubulars. Sizes ⅛ in. to ⅜ in.	Standard Wrot. Mild Steel Tubes and Tubulars. Sizes ½ in. to 2 in.	Standard Flanges. Sizes ⅛ in. to 2 in.	Standard Fittings.
	%	%	%	%
Gas	63½	68½	63½	60
Water	60	65	58½	56½
Steam	57½	62½	53½	52½
Galv. gas.	55	60	53½	52½
Galv. water	50	55	48½	48½
Galv. steam	45	50	43½	45

C.I. HALF-ROUND GUTTERS—London Price ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/9½	1/4½	5½d.
3½ in.	2/1	1/6	6½d.
4 in.	2/1	1/8	8d.
4½ in.	2/2½	1/11	10½d.
5 in.	2/4½	2/-	1/0½

O.G. GUTTERS.

3 in.	2/1	1/10	8½d.
3½ in.	2/3½	1/10	9½d.
4 in.	2/5	1/11	10½d.
4½ in.	2/6	2/2½	1/0½
5 in.	2/10	2/6½	1/2½

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles,	Branches, stock angles.
2 in.	2/8½	1/8	2/5½
2½ in.	2/9½	1/11	2/11½
3 in.	3/8	2/4½	3/7
3½ in.	4/1	2/10½	4/1½
4 in.	4/9½	3/5	5/-

Less 20 per cent. trade discount.

Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices ex Stock,

	Pipe. s. d.	Bends, stock angles, s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6 fts.	3 5	2 5	2 11
2½ in. "	3 10	2 8	3 8
3 in. "	4 2	2 11	4 4
3½ in. "	4 7	3 8	5 0
4 in. "	5 0	4 0	5 10

L.C.C. COATED DRAIN PIPES.—London Prices ex Stock,

	Pipe. s. d.	Bends, stock angle, s. d.	Branches, stock angles. s. d.
3in.peryd.in.9ft.lengths	4 9	5 4	8 9
cwt. qr. lbs.			
4 in. " 1 1 20.	6 9	6 3	11 0
5 in. " 1 2 22.	8 4	11 0	16 11
6 in. " 2 0 6	10 0	12 10	21 3

Gaskin for jointing 45/- per cwt.

Per ton in London.

IRON—	£ s. d.		£ s. d.
Common Bars	11 15 0	to	12 15 0
Staffordshire Crown Bars— Good merchant quality	14 0 0	to	15 10 0
Staffordshire Marked Bars	18 0 0	..	18 10 0
Mild Steel Bars	13 10 0	..	14 10 0
Steel Bars, Ferro-Concrete quality, basis price	15 0 0	..	16 0 0
Hoop iron, basis price	15 0 0	..	16 0 0
" Galvanised	25 0 0	..	27 0 0

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS—(*Contd.*)

Per ton in London.

IRON—	£ s. d.	£ s. d.
Soft Steel Sheets, Black—		
Ordinary sizes, to 20 g. ..	16 10 0 ..	17 10 0
" " 24 g. ..	17 10 0 ..	18 10 0
" " 26 g. ..	18 10 0 ..	19 10 0
Sheets Flat Best Soft Steel, C.R. and C.A. quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	18 10 0 ..	19 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g. ..	20 10 0 ..	21 10 0
No. 1 quality £4 per ton extra.		
Flat and Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 9 ft. to 20 g.	20 0 0 ..	22 0 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	21 0 0 ..	24 0 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g	22 10 0 ..	25 0 0
Sheets, Galvanised, Flat Best quality—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	21 0 0 ..	24 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	22 10 0 ..	25 0 0
Best Soft Steel Sheets, 26 g.	25 0 0 ..	26 0 0
Cut Nails, 3 in. to 6 in.	19 10 0 ..	21 0 0

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s.	d.
Seamless Copper tubes (basis).	per lb.	1	3
Strong sheet	"	1	3½
Thin.....	"	1	4½
Copper nails	"	1	3½
Copper wire	"	1	3½

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
32/- 47/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
42/- 61/6 per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in. ¾ in. 1 in. 1¼in. 1½in. 2 in.
27/6 42/6 75/- 181/- 264/- 409/- per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
46/6 68/6 106/- 205/- 307/- 590/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
7/6 10/6 16/- 29/- 39/- 56/- per doz.

HEAVY CROYDON BALL VALVES.

½ in. ¾ in. 1 in. 1¼ in. 1½ in.
36/- 59/6 96/- 205/- 278/- per doz.

CAPS AND SCREWS.

1½ in. 1½ in. 2 in. 3 in. 3½ in. 4 in.
10/- 12/- 18/6 32/- 44/- 48/- per doz.

BRASS FERRULES OR SLEEVES.

1½ in. 2 in. 3 in. 3½ in. 4 in.
10/- 12/6 22/6 31/- 45/6 per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

1½ in. 1¾in. 2 in. 3 in.
8 lb. Lead P...24/6 32/6 49/- 72/- per doz.
8 lb. Lead S...29/6 38/6 59/- 93/- per doz.

SOLDER.—Plumbers' 1/2; Tinmen's, 1/4; Blow-pipe, 1/7 per lb.

PAINTS, &c.

		£	s.	d.
Raw Linseed Oil, in pipes	per gallon	0	3	1
" " " in barrels	"	0	3	3
" " " in drums	"	0	3	5
Boiled " " in barrels	"	0	3	6
" " " in drums	"	0	3	8
Turpentine, in barrels	"	0	3	1
" in drums (10 gals.) ..	"	0	3	3
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)		51	0	0

Extra for 1-cwt kegs over 5-cwt. casks is 2/9 cwt.

GENUINE WHITE LEAD PAINT.

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Pauls," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots per ton delivered £ 70 s. 0 d. 0

Red Lead, Dry (packages extra)...per ton	50	0	0
Best Linseed Oil Putty .....per cwt.	0	13	0
Size. XD quality ..... fkn.	0	3	6

LEAD, &c.

(Delivered in London.)	Per ton. £	s.	d.
LEAD.—Sheet, English, 4 lb. and up	25	5	0
Pipe in coils	24	15	0
Soil pipe	30	5	0
Compo pipe	31	10	0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton £15 0 0

VARNISHES, &c.

		Per gallon.		
Oak Varnish	Outside	0	14	0
Fine Do.....	Do.	0	16	0
Fine Copal.....	Do.	0	18	0
Pale Copal	Do.	1	0	0
Pale Opal Carriage	Do.	1	4	0
Best Do.	Do.	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper	Do.	0	18	0
Fine Copal Cabinet	Do.	1	2	0
Fine Copal Flatting	Do.	1	0	0
Hard Drying Oak	Do.	0	18	0
Fine Hard Drying Oak	Do.	0	19	6
Fine Copal Varnish	Do.	1	0	6
Pale Do.	Do.	1	12	0
Best Do.	Do.	1	2	6
Best Japan Gold Size		1	12	6
Best Black Japan		0	10	0
Oak and Mahogany Stain (water).....		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	0
Knotting (patent).....		0	15	0
French and Brush Polish		0	12	0
Liquid Dryers in Terebene		0	9	0
Cuirass Black Enamel		0	7	0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY AND SELECTED GLAZING QUALITY.

	per ft. super.		per ft. super
18 oz. O.Q.	2½d	32 oz. O.Q.	6d.
18 " S.Q.	2¾d.	32 " S.Q.	6½d.
24 " O.Q.	3½d.	Obscured Sheet, 18 oz.	3d.
24 " S.Q.	3¾d.	" " 24 "	4½d.
26 " O.Q.	3¾d.	Fluted ..... 21 oz.	9d.
26 " S.Q.	4½d.	Em'lld 18 oz., 5½d., 24 oz.,	6¾d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft. s.	d.
Rolled plate, ¼ in.		5½d.
Rough cast double rolled, ⅜ in.....		6½d.
Rough cast double rolled, ½ in.		6½d.
Figured rolled, etc., white		6½d.
Figured rolled, etc., tinted		9½d.
Rolled Sheet		6d.
White rolled cathedral		6d.
Tinted rolled cathedral		8½d.

Rolled plate is the same price as rough cast double rolled.

	Per ft. s.	d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick	0	10½
Wire Rolled, ¼ in. thick.....	0	9½
Wired Cast, ¼ in. thick.....	0	9½
"Calorex" Sheet, 21 oz.	2	6
" 32 oz.	4	0
" Cast, ¼ in. thick	0	10
" " ⅛ in. thick	1	0
" " ¼ in. thick	1	2

"VITA" GLASS.

Clearsheet—not exceeding 1 foot	1	0	
Do. do. 2 feet	1	3	
Do. over 2 feet	1	9	
Polished plate not exceeding 1 foot	1	6	
Do. do. 2 feet	3	0	
Cathedral—not exceeding 1 foot	1	0	
Do. larger sizes.....	1	6	
Horticultural Sheet and Cathedral "Vita" Glass. Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1	0	
3/16 in. Wired Georgian Design. Sizes up to 96 inches long by up to 24 inches wide	2	6	

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from February 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen.....	1/7½.....	1/7	1/6½	1/6	1/5½	1/5
Labourers	1/2½.....	1/2¼	1/2	1/1½	1/1	1/0½

Aberdeen .....A	East Fife (embraced by a line from Largs to Kingsbarns and eastward to the Coast)...B	Hamilton .....A	Perthshire .....A
Ayrshire .....A		Inverness .....*	Peterhead .....A
Banff .....B		Inverurie.....A¹	Renfrewshire .....A
Berwickshire .....A²		Kincardineshire .....A²	Rothesay .....A
Bridge of Allan.....A	East Lothian.....A	Kinross-shire .....A	Roxburghshire .....A¹
Broughty Ferry .....A	Edinburgh .....A	Lanarkshire .....A	St. Andrews .....A
Clackmannanshire.....A	Fifeshire (with the exceptions of towns in East Fife which are under Grade B).....A	Mid-Lothian .....A	Selkirkshire .....A¹
Doune .....A		Monifieth .....A	Stewartry .....A¹
Dunblane .....A		Moray and Nairn ....B	Stirlingshire .....A
Dumbartonshire .....A		Newport .....A	Stornoway .....A²
Dumfriesshire.....A	Forfarshire .....A	Peeblesshire .....A²	Tayport .....A
Dundee .....A	Glasgow .....A	Perth .....A	West Lothian .....A
Dunoon .....A	Greenock.....A		

*This town has its own rates: Masons, 1/6; Carpenters, 1/6; Slaters, 1/6; Plumbers, 1/6. Plasterers, 1/6. Painters, 1/5; and Labourers, 10d. to 1/-.

The information given in this table is copyright. The rates of wages in England and Wales are given on page 1,000

THE SCOTTISH BUILDER

NEW BUILDINGS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Where business representatives cannot be seen personally at this stage, this should be mentioned. Items should reach 4, Catherine-street, Aldwych, W.C.2, no later than Wednesday morning.

ABERDEEN. — HALL. — The Northfield Mission Hall in Leadside-road, which is being demolished, will be replaced by a new one-storey building at the corner of Leadside-road and Short Loanings. Work on the new hall, which is estimated to cost over £3,000, has just started. The architect is Mr. Charles Forrest, jun., 3A, Alford-place, Aberdeen.

ABERDEEN.—EXTENSIONS.—The T.C. has decided to proceed with a scheme of extensions to the nurses' home at the Kingseat Hospital.

BLAIRGOWRIE.—HOUSES.—The T.C. has decided to erect 32 houses on the Ashgrove site. The architects are Messrs. Johnstone and Baxter, 114, Seagate, Dundee.

CRAIGNEUK. — SCHOOL.—Plans are to be prepared by Mr. John Stewart, of Albert-street, Motherwell, for a new school.

EDINBURGH.—LIBRARY.—The T.C. are to proceed with a new library on the site of the existing library building in Dundee-street. Plans are being prepared by Mr. E. J. MacRae, City Architect.

EDINBURGH. — BUILDING.—The Dean of Guild Court has passed plans: Corporation, Offices in Cockburn-street to centralise the municipal departments; to demolish and erect 27 houses and two shops at 61 to 75, Pleasance; and Zoological Society of Scotland, additions at the Zoological Park, Corstophine-road.

FORT WILLIAM. — EXTENSIONS. — The Lochaber Co-operative Society has decided on extensions to its premises at £1,000.

GIRVAN.—BOATING LAKE.—Mr. A. D. G. Grant, Burgh Surveyor, has submitted plans to the T.C. for a proposed boating lake, with children's playing-pools and shelters. The estimated cost of the scheme is in the region of £6,000.

GLASGOW.—WAREHOUSE.—Messrs. Harris, Ltd., 38, Sauchiehall-street, have acquired a site at the junction of West Nile-street and Sauchichall-street for a new warehouse.

GLASGOW.—BUILDINGS.—Plans are in the hands of their own architects for new factory which Messrs. Munro and Miller, Ltd., Mosspark Tube Works, Edmonton-street, Mosspark, intend to erect. Plans are to be prepared for new child welfare clinic and other offices at Cowcaddens. Mr. Thomas Somers, architect, Municipal Buildings. Plans are coming before the Dean of Guild Court for new business premises in Broomloan-road, Govan. Mr. John Easton, architect, West George-street, Glasgow.

GLASGOW.—STORES. — The Corporation Electricity Committee has decided to erect a new central stores and garages at Port-Dundas. The cost is £39,000.

GLASGOW.—HOUSES.—A committee of the Corporation decided that the 4,309 houses to be built on the Pollok estate should be constructed by direct labour.

INVERNESS. — PAVILION. — Plans were passed at the Dean of Guild Court for a new pavilion in the Royal Academy sports ground at Millburn, at £2,200.

INVERNESS.—EXTENSIONS.—Plans are in hand for reconstruction and extension to the Garri Hotel, the architect being Mr. A. F. McKenzie, 34, Bridge-street.

KIRRIEMUIR. — HOUSES.—The T.C. has decided to proceed with 35 houses.

LARGS.—EXTENSIONS.—Plans are to be prepared for an extension of at least 50 bedrooms to the Hollywood Hotel, the architect being Mr. J. McLauchlan, Murray-place, Ayr.

NEW BUILDINGS IN SCOTLAND

(*Continued from previous page*).

MUSSELBURGH. — HOUSING. — Mr. J. Logan, Burgh Surveyor, has brought forward a plan for 364 houses on the Linkfield-road site. A social centre will be established, also a shopping centre. There will be a hall to seat 400, a library, billiard and games rooms and four large shops.

MUSSELBURGH. — POLICE STATION.—The Dean of Guild Court passed plans for the erection by Midlothian C.C. on a central site in the town at Millholm of new police buildings. The estimated cost of the scheme is £18,000, and the architect is Mr. Wm. Scott, F.I.A.A., County Architect.

NEWTON-MEARNS.—FLATS.—Plans have been prepared and approved, the architect being Mr. James Taylor, 120, West Regent-street, Glasgow, for three large blocks of flats, with garages and complete offices, to be erected along with caretaker's house on sites at Sandringham-court. The main building contract will be carried out by Messrs. McTaggart and Meikel, Ltd., Glasgow.

RENFREWSHIRE. — BUILDING.—The C.C. has passed the following plans: Messrs. Mactaggart and Mickel, Ltd., 65, Bath-street, Glasgow, 40 houses at proposed road, Giffnock. Scottish Industrial Estates, Ltd., 41, St. Vincent-place, Glasgow, eight standard unit factories, block No. 12 new road, No. 121, Industrial Estate, Hillington, and also factory block No. 20, at the estate.

SCOTLAND. — HOUSES.—Approximately £5,000,000, it is understood, is to be spent by the new Scottish Special Areas Housing Association, Ltd., on the provision of houses in Scotland.

PUBLIC WORKS

GREAT BRITAIN.—Following are notes on some loans sanctioned by the Minister during the week ended November 13: Aberavon R.D.C.—£11,277 for purposes of water supply for four parishes in the rural district; Bristol C.C.—£22,365 for land for extensions to the Corporation airport; Flintshire C.C.—£12,672 for the widening of the St. Asaph-Rhuddlan road; Hornsey T.C.—£23,508 to defray further expenditure in connection with the erection of the new town hall; Pontardawe R.D.C.—£31,720 for purposes of sewerage for Llanguick; Scarborough T.C.—£12,500 for the purchase of land for the improvement of the borough; Sheffield C.C.—£126,456 for the purchase of property for street improvement purposes; South Shields C.B.C.—£63,010 for the erection of the Cleadon Park new senior council school; Teignmouth U.D.C.—£7,000 for the extension of the sea-wall; Wednesbury T.C.—£17,927 for a public elementary school at Crewe-road; and York (West Riding) C.C.—£12,228 for extensions and additions to the Maltby grammar school.

PORTHCAWL.—The Great Western Railway are to completely rebuild the existing station, the doubling of the remaining single line section of the Pyle-Porthcawl branch line, and the provision of improved through running facilities with the main line at Pyle. The new station will be more than twice as large as the existing station, and will be built on the same site and will spread over part of the present carriage sidings. The station will have seven platforms, booking offices, cloakrooms, waiting rooms, etc., and other offices. The front of the station will provide accommodation for shops which will face on to a broad new approach road.

Copper Development Association.

The Management Committee of the Copper Development Association announces that Mr. D. P. C. Neave, who has been general manager and secretary of the Association since its inception in 1933, is resigning at the end of the present year. Mr. G. W. Preston, the Association's electrical engineer, has been appointed general manager, and Dr. S. Baker, now assistant-secretary, will become secretary.

TRADE NEWS

Portable Lamps.

Contractors and engineers who require floodlight projectors and storm lamps for night work will find of interest a leaflet issued by the Tilley Lamp Co., of Hendon, N.W.4. In it are described, illustrated and priced several types of lamps, all burning ordinary paraffin and giving high illumination values. As an example, the large size hand lamp gives, it is claimed, a powerful directional beam of 1,000 mean reflected C.P., at a cost of 1d. for eight hours. A copy is obtainable on request.

Decorative Glass, Leicester-square Odeon.

The six pairs of plate-glass front-door panels at the Odeon Theatre, Leicester-square, were designed by Mr. Bainbridge Copnall, who made very effective use of brilliant cutting, acid etching, moulded sand-blasting and cloud sandblasting. The subjects of his designs were: Earth, Air, Fire, Water, Day, and Night, the decoration being carried out by the London Sand Blast Decorative Glass Works, Ltd., of Burdett-road, E.3. This firm were responsible also for the large decorative mirrors in the vestibule and on the staircase.

Municipal Contractors' Plant.

The Phœnix Engineering Co., Ltd., have issued a new catalogue showing their range of plant for municipal and contractors' use, etc., including tar and bitumen boilers, spraying machines (hand- and power-operated and coal- and oil-fired), cold emulsion sprayers, mastic asphalt mixers, cauldrons, sand and grit driers, tumbler and night-soil carts, high-capacity contractors' trench pumps, etc. The plant illustrated and described incorporates many of the latest improvements. The catalogue may be obtained from Phœnix Works, Chard.

Site at Battersea.

Messrs. Hampton & Sons (Arlington-street) have for disposal the Victoria Granaries, Battersea, covering a site area of well over an acre, and having existing buildings affording a floor space of some 43,600 sq. ft.; also garages, manager's house, and other buildings. The property has its own water supply and is particularly suitable for warehouse or industrial purposes and is freehold.

Queen's Hotel, Leeds.

In our review of the new Queen's Hotel, Leeds, last week, it was stated that the pneumatic despatch tube system and linen chute were installed by Lamson Engineering Co., Ltd. We learn that, in addition, the Lamson Engineering Company installed a vacuum cleaning system serving the whole building. This equipment is particularly interesting because of the Lamson patented silent hose connections which have been incorporated.

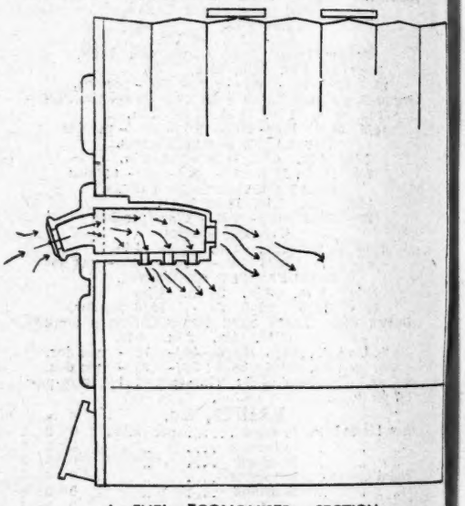
Messrs. James Gibbons, Ltd., of 15, Fisher-street, Southampton-row, W.C.1, inform us that, with the exception of the basement, the majority of the floor springs were supplied by them to the Queen's Hotel, Leeds, as were also the silver-bronze furniture and fittings.

Hand-Power Lifts.

Despite the popularity of the electric-powered lift for passenger and heavy goods conveyance, there remain many uses for the hand-powered lift. Some of these, with illustrations, diagrams and full details, are given in a well-produced brochure issued by Hammond and Champness, Ltd. Architects for large houses, flats, hotels, restaurants, etc., will find this brochure of considerable interest. Copies may be obtained upon application.

A FUEL ECONOMISER

Whether applied to domestic or industrial boilers, the problem of reducing fuel costs has always been a great one, especially in boilers which are fired with solid fuel which is some form either of coal or coke. Details have reached us of a fitting for boilers which is claimed to be the means of bringing about effective economy in relation to fuel. This is the M.H.A. Fuel Economiser, which is specially designed for boilers and furnaces using coke, coal or anthracite fuels. This fuel economiser operates by introducing pre-heated secondary air which, mixing in the furnace with waste gases, makes them combustible, thereby reducing the usual heat losses which ordinarily occur and consequently improving the thermal efficiency of the plant to which it is fitted.



A FUEL ECONOMISER: SECTION

The M.H.A. Fuel Economiser unit, consisting of the furnace door and air preheating chamber, is formed in one complete casting. When mounted on the boiler, the heating chamber is automatically withdrawn on opening the furnace door and swings clear to enable firing to be carried out as in the usual practice. It offers no obstruction to firing, stoking and cleaning operations. Being of robust construction it can be relied upon, we are told, with fair wear and tear, to outlast the plant to which it is fitted. When set to meet working conditions of the boiler or furnace it requires no attention whatsoever.

The introduction of preheated air is in accordance with well-established principles, and the preheated air outlets are designed in such a manner that they convey preheated air at the desired temperature and distribute it well over and throughout the hot zone of the furnace. The M.H.A. Fuel Economiser is constructed for all types of central heating and hot-water boilers, and, we are informed, is suitable for use with the majority of solid fuel furnaces. Full details may be obtained from the London and Hampshire agents, Asmega (Britain), Ltd., 68, Victoria-street, S.W.1.

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TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

* Denotes *accepted*.
† Denotes *Provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Aberdeen.—Extension of the nurses' home at Kingseat Mental Hospital, for the T.C. :—
Excavator, mason and brick—*G. Duncan & Son, Inverurie.
Carpenter, joiner, ironmonger and glazier—*C. Keith, Balmedie.
Slater—*G. Duncan & Son, Inverurie.
Plumber—*J. & G. Monro, Aberdeen.
Lath and plaster—*Roger & Baxter, Aberdeen.

Aberystwyth.—College buildings: (*a*) Agricultural research block; (*b*) dairy buildings at Penglais-road, for the Council of Welsh University College. Mr. Percy Thomas, F.R.I.B.A., architect, 10, Cathedral-road, Cardiff :—
(*a*)—*W. T. Nicholls, Ltd., 10, St. Paul's-road, Gloucester.
(*b*)—*Henry Willcock & Co., Ltd., Darlington-street, Wolverhampton.

Acton.—Works, for the T.C. :—
Reconstruction of the tiled surrounds in the second-class bath—

Thomas Bros., Sudbury	£385 10 11
Ferris Bros., Acton	333 0 0
Granite Paving Co., Redhill	299 15 5
Wilson & Wylie, Hayes	220 2 0

Reconstruction of the north-west and south-west entrances to Acton-park—

Thomas Bros., Sudbury	£827
Ferris Bros., Acton	822
*Lees of Enfield, Ltd.	710

Ashington.—14 aged miners' homes. Messrs. W. Dixon & Sons, architects, 1, Collingwood-street, Newcastle :—
*Rigby & Appleton, North Shields.

Bedford.—Police station and quarters at Station-road, Biggleswade, for the C.C. Mr. Sydney C. Jury, superintending architect, Shire Hall. Quantities by Mr. G. H. F. Waghorn, St. Albans :—

—. Styles, Biggleswade	£20,500
H. F. Bull, Sandy	15,324
S. Redhouse & Son, Stotfold	14,283
J. Honour & Son, Tring	14,275
Wrights, Ltd., Langford	13,648
H. C. Janes, Ltd., Luton	13,626
*John Ray, Ltd., Letchworth	13,476

Bedford.—Police station, quarters and court houses in Hockcliffe-road, Leighton Buzzard, for the C.C. Mr. Sydney C. Jury, superintending architect, Shire Hall. Quantities by Mr. G. H. F. Waghorn, St. Albans :—

Webster & Cannon, Aylesbury	£17,088
H. Lacey & Sons, Luton	16,720
H. C. Janes, Ltd., Luton	16,597
J. Honour & Son, Tring	15,860
*Fleet & Roberts, Ltd., Aylesbury	15,772

Beeston.—Erection of Rylands temporary Council school, with accommodation for 192 children, for the Notts E.C. Mr. E. W. Roberts, A.R.I.B.A., County Architect, Nottingham :—
*J. Quinn & Son, Basford, Nottingham £2,780

Belper.—20 houses and six bungalows at Crich, for the R.D.C. :—

Appleby & Ward, Alfreton	£9,535 0
J. T. Wildman, Heanor	9,165 6
Ripleys, Ltd., Ripley	9,100 17
H. Beswick, Derby	8,931 0
Needham & Walker, Belper	8,810 0
F. E. Wheeldon, Belper	8,780 0
H. Hunt & Sons, Ripley	8,641 0
Lee & Brumwell, Matlock	8,050 0
W. & G. Booth, Horsley Woodhouse	7,985 0
Hunt & Cooper, Belper	7,780 0
A. Sheldon, Ilkeston Junction	7,750 0
*Oakes & Quinton, Marlpool, Heanor	7,232 0
H. Tomlinson, Belper	7,188 0

Belper. — Assembly hall in Derwent-street Meadows, off Bridge-street :—
*W. Alton, Derby-road, Belper.

Birmingham.—Factory in New John-street, for Messrs. Dunbar & Cook :—
*Arden Bros., 940A, Stratford-road, Sparkhill, Birmingham.

Birmingham.—Extensions to premises in Grange-road, Small Heath, for Messrs. Butlers, Ltd. :—
*W. E. Cheshire & Co., Broad-road, Acocks Green, Birmingham.

Birtley.—Tinplate works, for the Co-operative Wholesale Society. C.W.S. Architects' Dept., 90, Westmorland-road, Newcastle-on-Tyne :—
*C.W.S. Building Dept., West Blandford-street, Newcastle-on-Tyne.

Bishopbriggs.—29 villas with complete offices in Bradenburg-road. Mr. Norman McFadyen, architect, 42, Borland-road, Bearsden :—
Excavation, brick and mason—*Lawrence & Co. (Glasgow), Ltd., Glasgow.
Plumber work and sanitary fixtures — *J. Y. Symington, Govanhill.
Slater work and roughcasting, etc. — *A. C. Whyte & Co., Ltd., Pollokshaws.
Joinery, carpentry and ironmongery—*J. Lawrence, Ltd., Glasgow.
Plaster and lathing—*A. McKellar, Glasgow.
Electrical fittings and installation—*K. McKellar & Co., Govanhill.
Painter—*J. Chisholm & Son, Glasgow.

Border.—Underground pumping station and laying sewers, etc., at Burgh-by-Sands, Border, for the R.D.C. Engineer and Surveyor, 7, Victoria-place, Carlisle :—
*Cleghorn & Co., Ltd., 1, Warwick-road, Carlisle.

Bristol.—Club premises, including concert hall and stage, billiard-room, hard tennis courts, etc., in Park-road, Kingswood, for the Y.M.C.A. Mr. Eustace H. Button, F.R.I.B.A., architect, 18, Orchard-street :—
*Bray & Slaughter, Ltd., Kingston-road Bristol.

Buxton.—School hall and Sunday school on the site of the old school, Park-row, Tideswell, for Rev. A. E. Clegg and Trustees of the Congregational Church. Mr. L. F. Smith, L.R.I.B.A., architect, 5, Chesterfield-road :—
*Evans Bros., Bradwell, near Sheffield £1,160

Buxton.—Drill hall on the Silverlands as headquarters of the 359th Company of the 40th Anti-Aircraft Battalion (The Sherwood Foresters). Messrs. Thomas Worthington & Sons, 178, Oxford-road, Manchester, and G. V. Sayner, 4, Grove-parade, associated architects :—
*M. J. Gleeson, Ltd., 822, Chesterfield-road, Woodseats, Sheffield ... £15,000

Carolside.—25 houses, garages and other offices in Windsor-avenue and Broompark-drive, Clarkston. Mr. James Taylor, architect, West Regent-street, Glasgow :—
Excavation, brick and mason—*MacTaggart & Mitchell, Ltd., Glasgow.

Carstairs Junction.—24 houses, for the Lanarkshire C.C. Mr. William Brown, County Housing Architect, Hamilton :—
Excavation, brick and mason—*Bryce & Symington, Carluke.
Joinery, carpentry and ironmongery — *R. Simpson, Coalburn.
Plumber work and sanitary engineering—*Duncan Johnstone, Strathaven.
Slater work and roughcasting, etc.—*S. Holmes, Rutherglen.
Plaster and lathing—*W. D. Bertram, Lesmahagow.
Painter, etc.—*G. Law, Bellshill.
Electrical engineering installation—*S. Harvie, Wishaw.
Iron railings and gates—*A. & J. Main & Co., Ltd., Glasgow.

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Chigwell (Essex).—Houses, for the U.D.C. Mr. G. Holbourn, A.M.Inst.C.E., engineer and surveyor :—
20, at Englands-lane, Loughton; 20, off Cascade-road, Buckhurst-hill; and, 6 off Gravel-lane, Chigwell-row—

E. W. Burton, Ltd., Woodford Green	£30,516 6
Eaton Bros., Loughton	27,206 6
Franklin & Co., Ltd., Erith	26,128 7
F. Betts & Co., Ltd., Woodford Green	25,220 5
Gale & Betts, Loughton	23,446 0
Leggett & Partners, Romford	23,406 0
H. E. Budds, Broadstairs	21,578 8
†Stedman Bros., New North Works, New North-road, Barkingside	21,565 17

Chigwell houses only—

H. H. Starks, Woodford Green ... (Subject to M.H. sanction.)	4,296 18

Clayton West.—10 houses in The Royds, for the U.D.C. Messrs. Simpson & Moxon, architects, Southgate-chambers, Wakefield :—
*T. Hollingworth & Sons, Rowgate, Cumberworth.

Coventry.—Factory at Foleshill, for the Standard Motor Co., Ltd., Canley. Mr. T. R. J. Meakin, architect, 11, Warwick-row :—
*Garlicks, Ltd., Far Gosford-street, Coventry.

Cricklade.—Water-supply scheme, for the Cricklade and Wootton Bassett R.D.C. :—
*Squires & Co., Selby, Yorks £72,000

Crook.—School, for the Durham County E.C. Mr. F. Willey, architect, 34, Old Elvet, Durham :—
*Wright & Kellett, Ltd., Chester-le-Street, £45,306 (in lieu of direct labour tender)

Darlington.—Extensions, including new lounge, kitchens, etc., at the Imperial Hotel. Messrs. Marshall, Tweedy & Bourn, architects, Mervyn House, Newcastle :—
*Sanders, Hutton, Ltd., Post House Wynd ..... (about) £8,000

Denbigh.—Girls' County school at Wrexham, for the E.C. Mr. Gilbert D. Wiles, architect, Acton Hall, Wrexham. Quantities by Messrs. W. J. Gregory & Son, Post Office-chambers, Colwyn Bay :—
†W. Gittins, South View, Aberderfyn near Wrexham £32,209

Deptford.—Supply and erection of an additional greenhouse at the council's nursery, for the B.C. :—
Duncan, Tucker (Tottenham), Ltd.,

Tottenham	£220 0
S. Hartley & Co., Shipley	180 0
Foster & Pearson, Ltd.	167 0
Boulton & Paul, Ltd., Norwich	162 10
Messenger & Co., Ltd., London	160 2
*William Wood & Son, Ltd., Taplow	159 0

Derby.—163 houses on the Roe Farm estate, for the T.C. Mr. C. H. Aslin, F.R.I.B.A., Borough Architect :—
*Browning Bros., 3, Main-street, Humberstone.

Dunmow.—59 houses, for the R.D.C. :—
*L. H. H. Clowes—

6, Hatfield Broad Oak	£2,426 10 10
2, Hatfield Heath	713 17 6
4, Aythorpe Roding	555 14 0
10, Stebbing	4,123 11 10
6, Felsted	2,974 18 6
4, Mole Hill Green, Takeley	1,443 6 6
12, High Easter	4,690 12 11

*T. Harris, Dunmow—

2, High Roding	816 10 4
3, Little Canfield	1,189 17 9
2, Lindsell	896 15 11

*Smith Bros.—
8, Great Hallingbury 3,120 0 0

Durham.—Additions to Durham County Hospital, for the Committee of Management. Messrs. Cordingley & McIntyre, architects, The College, Durham :—
*Gradon & Sons, Durham.
Steelwork contractors—*Bolton & Hayes, Bolton.

East Suffolk.—Driving steel piling for sea defence at Kessingland, for the Rivers Catchment Board, Kessingland Sub-Committee :—
*May, Gurney & Co. £1,880

Felling-on-Tyne.—Erection of 207 houses at Bill Quay, Felling House estate and the Nest House estate, for the U.D.C. :—
*Direct Labour.
(Subject to M.H. approval.)

Formby.—Senior Council school, for the Lancashire E.C. Mr. Stephen Wilkinson, F.R.I.B.A., County Architect, Preston :—
*Tyson's (Contractors), Ltd., Dryden-street, Liverpool £16,200

Gateshead.—Conversion of "Bloomfield" into junior instruction centre, for the T.C. Mr. F. H. Patterson, Borough Engineer :—
*J. Sutton & Sons, 157, Back Westminster street, Gateshead.

Gosport.—School in Privett-road, for the E.C. :—
*Crosby & Co., Farnham £28,873

Great Crosby.—Boundary railings to playing fields at the junior and infants' Council school, for the E.C. :—
*T. Blackburn & Sons, Ltd., Isherwood-street, Preston £555 9 6

Guildford.—Club-house, flat, etc., in Joseph's road, for the Guildford City Association Football Club, Ltd. Messrs. Hodgson, Dunn & Co., architects, High-street :—
*H. W. Frampton & Co., High-street, Guildford.

Harrogate.—Bank in James-street, for Messrs. Barclays Bank, Ltd., Lombard-street, London, E.C.3. Messrs. W. J. Morley & Son, F.R.I.B.A., architects, 269, Swan-arcade, Bradford :—
*W. Birch & Sons, Ltd., Spen-lane, York.

Haverton Hill-on-Tees.—New library, for the Durham County E.C. Mr. F. Willey, architect, 34, Old Elvet, Durham :—
*S. Baggott, West Hartlepool £4,616

Howden-on-Tyne.—Club premises, for the Howden British Legion. Messrs. W. Dixon & Son, architects, 1, Collingwood-street, Newcastle-on-Tyne :—
*R. Carse & Son, Morpeth ... (about) £4,000

Hull.—88 houses on the Endike-lane estate, for the T.C. Mr. D. Harvey, City Architect :—
*Tarran Industries, Ltd., Clough-road, Hull.

Knoulton.—Permanent school for 80 children for the Notts E.C. Mr. E. W. Roberts, A.R.I.B.A., County Architect, Nottingham :—
*C. R. Crane & Son, 3, Mellors-road West, Bridgford, Nottingham £2,480

Langley.—Demolition of two houses in Vicaragerroad and the erection of a new hotel, for Messrs. Mitchells & Butlers, Cape Hill Brewery, Smethwick :—
*J. Harper & Son, Ltd., Blackheath, near Birmingham.

Leeds.—460 houses on the Seacroft (Park'ands) estate, for the Corporation. Mr. R. A. H. Livett, Director of Housing :—
300 houses—*Middleton & Co., Blackpool.
60—*Paul Rhodes, Ltd., Leeds.
100—*Geo. Monkman & Son, Ltd., Leeds.

Leeds.—Administrative building and hangar, Yeadon, for the Leeds and Bradford Joint Aerodrome Committee. Mr. J. E. Acfield, City Engineer, Civic Hall :—
*William Thompson & Sons, 19, Sheepscar-street North, Leeds £28,152

Liverpool.—Rebuilding of the "Cabbage Hall" hotel, Breck-road, for Messrs. Threlfall's Brewery Co., Ltd., 21, Trueman-street. Messrs. Medcalf & Medcalf, FF.R.I.B.A., architects, 3, Stanley-street :—
*Murray & Fowler, 3, Gerald-street, Liverpool, 6.

Llandudno.—Garage at the police station, for the Caernarvonshire C.C. Mr. W. L. Jones, County Architect, Caernarvon :—
*J. Owen, Breton-street, Llandudno.

¶London.—Tenders accepted by H.M.O.W. for the week ended November 18 :—
Somerset House—alterations to west search room, etc.—Higgs & Hill, Ltd., 14, Godliman-street, St. Paul's-churchyard, E.C.4.
Littleborough Employment Exchange—erection—Fearnley & Sons, Ltd., Constance Works, Eccles New-road, Salford.
Cardiff Telephone Repeater Station—erection—Tucker Bros., Ltd., 181-3, Broadway, Cardiff.
Royal Ordnance Factory, Bishopton—vertical screw presses—G.W. Engineering Co., Ltd., Railway Engineering Works, Biddulph, Stoke-on-Trent.
Royal Ordnance Factory, Chorley—heating and hot water services in the fuze and Q.F. groups—G. Dawson & Sons, 317, Chapel-street, Salford.
Table—writing—R. Palmer & Co., Jubilee Works, Wilder-street, Bristol; A. G. Farmer & Sons, Ltd., Winterstoke-road, Bedminster, Bristol; Smiths Systems, Ltd., St. Marks, Cheltenham; and Wake & Dean, Ltd., Yatton, near Bristol.
Holland-on-Sea (Essex) Telephone Exchange—erection—F. J. Mold, "Meriden," Ipswich-road, Holland-on-Sea.
Hertford House (Wallace Collection), W.1—external and internal painting—J. Scott Fenn, Ltd., 42, William-street, Woolwich, S.E.18.
Steel storage racks—Constructors, Ltd., Nickel Works, Tyburn-road, Erdington, Birmingham; and Milners' Safe Co., Ltd., 12 and 13, Newgate-street, E.C.1.
Brown drill overalls—Workwear, Ltd., Mount Vernon, Liverpool.
Sandiacre Telephone Exchange—erection—C. & H. Reedman, Sawley, Long Eaton, near Birmingham.
Royal Ordnance Factory, Chorley—detonator presses—Robert Legg, Ltd., City Engine Works, Eagle Wharf-road, N.1.
Royal Ordnance Factory, Irvine—installation of electric wiring—J. Kilpatrick & Son, Ltd., Kelvin House, River Cart-walk, Paisley; installation of heating, hot water steam, gas, compressed air and vacuum services—Hugh Twaddle & Son, Ltd., 130-132, London-road, Glasgow, C.1.
Southend-on-Sea S.O.—plastering and internal painting—A. J. Arnold, 8, Kingsway, Westcliff-on-Sea.
Epsom County Court—ventilating system—The Norman Turner Engineering Co., 121, Victoria-street, S.W.1.
Dollis Hill Research Station—enclosing covered ways—A. Roberts & Co., Ltd., 74, Earl's Court-road, Kensington, W.8.
Ministry of Pensions Hospital, Cosham—external and internal painting—A. Noon, Burton-road, Carlton.
Air Ministry, Imperial House, Kingsway, W.C.—alterations and decorations—Higgs & Hill, Ltd., 14, Godliman-street, E.C.4.

¶London.—The following works contracts have been placed by the War Office during the week ended November 18 :—
Harlow—clothing and store sheds—J. B. Edwards & Co. (Whyteleafe), Ltd., London, W.
Portsmouth and Hilsea—periodical painting services—A. Sharrocks, Rochdale.
Lichfield—artificers' work—W. J. H. Waterfield, Swadlincote.
Chilwell—heating two M.T. sheds—Ashwell & Nesbit, Ltd., Leicester.
Porton Camp—erection of sergeants' mess—J. Drewitt & Son, Bournemouth.
Birtley—repair and construction of roads—Tarslag (1923), Ltd., Stockton-on-Tees.

¶London.—List of new contracts placed by H.M. Air Ministry for the week ended November 20 :—
Abingdon, Milton, Oxford—artificers' works—Collett and Rogers, Ltd., Wooton.
Hook—building work—Limpus & Son, Ltd., Kingston.
White City, London—internal electric wiring—Alpha Manufacturing & Electrical Co., Ltd., Clapham, London, S.W.4.
Pembroke Dock—construction of slipway—R. Robinson & Co. (Contractors), Ltd., London, S.W.1.

Longbenton.—150 houses, for the U.D.C. :—
*R. Carse & Sons, Morpeth £54,587

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Maidenhead.—Garages at the "Riviera Hotel," for Messrs. Flower & Sons, Ltd. Mr. G. Allen Fortescue, F.R.I.B.A., architect, 30, Bedford-square, W.C.1 :—
*Cripps & Green, Cordwallis-road, Maidenhead.

Manchester.—Reconstruction of the "Druids Arms" inn, Brook-street, Chorlton-on-Medlock. Messrs. George Westcott & Son, architects, Manchester :—
*E. B. Jones & Rawlinson, Ltd., 6, Leaf-square, Pendleton, Manchester, 6.

Manchester.—Workshop, offices, garage and caretaker's flat, in Quay-street, New Quay-street and Back Quay-street, for Messrs. Globe & Simpson, Ltd., 184, West-street, Sheffield. Messrs. Ogden & Raine, architects, 63, Norfolk-street, Sheffield :—
Contractors—*R. Carlyle & Co., Ltd., Elsinore-road, Old Trafford, Manchester.
Painting and plastering—*A. Hogg, Ltd., 70, Crumpsall-lane, Crumpsall.
Plumbing and glazing—*McFarlane & Connolly, 13, Severn-street, Manchester.

Middlesex.—Works, for the C.C. :—
Demolition of "The Star" public-house in connection with the widening of Uxbridge-road, Hillingdon—

	County Council to pay	Credit to County Council
F. C. Robinson, Staines	£30 0 0	—
G. Fenson, Hillingdon	20 0 0	—
J. Godleman, Northolt	10 0 0	—
S. Godleman, Wilesden	free	—
W. Chambers, Uxbridge	—	£15 0 0
‡West London Housebreakers, Acton	—	17 10 0

Demolition of "The Royal Oak" public-house in connection with the widening of Cowley-road, Cowley :—

	County Council to pay	Credit to County Council
F. C. Robinson, Staines	£27 10 0	—
J. Godleman, Northolt	20 0 0	—
G. Fensome, Hillingdon	20 0 0	—
S. Godleman	15 0 0	—
West London Housebreakers	10 0 0	—
O. C. Jones & Sons, Hillingdon	—	£6 10 0
‡W. Chambers, Uxbridge	—	10 0 0

Further alterations and enlargement of the Wembley County school—

Thomas Bros., Wembley	£64,579
G. Holland & Sons	41,960
G. Godson & Sons, Ltd.	40,670
Sloggetts, Ltd., Hampton Hill	40,461
Y. J. Lovell & Son, Gerrard's Cross	39,977
W. S. Try, Uxbridge	39,966
Davis (Contractors), Ltd.	39,937
Wm Moss & Sons, Ltd.	39,886
W. Taylor (Builders), Ltd., Harrow	39,301
Barratt (Builders), Ltd.	38,639
Kent & Sussex Building Co., Ltd., Erith	38,108
‡Hansard, Ltd., Great Portland-street, W.1	37,535

Alterations and enlargement of the Enfield Grammar School—

Lees of Enfield, Ltd., Enfield	£52,000
Tarran Industries, Ltd.	48,611
H. Taylor (Epsom), Ltd., Epsom	47,015
W. Lawrence & Son, Ltd.	45,855
Newby Bros., Ltd.	45,268
Sloggetts (Contractors), Ltd., Hampton Hill	45,169
A. E. Symes, Ltd.	45,117
Y. J. Lovell & Son, Gerrards Cross...	44,975
Kent & Sussex Building Co., Ltd., Erith	44,962
Davis (Contractors), Ltd.	44,900
A. T. Rowley (London), Ltd.	44,533
‡Speirs, Ltd., Victoria-street, S.W.1 ...	43,999

Demolition of old works at the Isleworth casual wards—

Coles Demolition & Excavation, Ltd., Isleworth	£549
London Demolition Co., Ltd., Isleworth	299
G. Reeves, Wembley	275
Willment Bros.	265
‡Herbert Boyer, Ltd.	224

400 yards of concrete post and chain link fencing at the Staines Institution—

Penfold Fencing, Ltd., Watford ...	£132 1 1
Peerless Wire Fence Co., Ltd., Greenford	126 0 6
Fencing (Shepperton), Ltd., Watford	125 17 11
‡Prove Bros., Ltd., Watford	123 12 3

Swimming bath, library, etc., in Bowes-road, Southgate—

H. Taylor (Epsom), Ltd., Epsom	£22 358 0 0
Lees of Enfield, Ltd., Enfield...	22,085 19 2
Tarran Industries, Ltd.	21,925 0 0
Kent & Sussex Building Co., Ltd., Erith	21,624 0 0
A. E. Symes, Ltd.	21,260 0 0
Davis (Contractors), Ltd.	21,177 0 0
A. T. Rowley (London), Ltd. ...	21,134 0 0
Sloggetts (Contractors), Ltd., Hampton Hill	21,107 0 0
Speirs, Ltd.	20,585 0 0
Y. J. Lovell & Son, Gerrards Cross	20,460 0 0
‡Taylor Woodrow Construction, Ltd., Southall	19,515 4 8

Demolition and clearance of buildings at the Teddington Sewage Disposal Works—

Coles Demolition & Excavation Co.	£19,735	0	0
Eli Pearson, Ltd.	13,605	12	6
Gorst & Co., Ltd.	10,735	0	0
Willment Bros.	8,614	14	4
A. R. Wright & Son	7,057	10	0
Demolition & Construction Co....	6,873	10	6
†B. L. Pickford	3,817	10	0

(Remainder of London.)

Widening the Great West-road from Lionel-road to Bath-road—

Lavender McMillan & Co., Worcester Park	£130,880	1	8
W. F. Rees, Ltd.	127,452	8	4
Ewing & Salmond, Croydon	124,389	19	0
E. Knifton, Ltd.	124,321	10	1
Tarslag (1923), Ltd., South Harrow	123,179	15	0
Mears Bros.	123,041	9	10
G. J. Anderson	121,882	5	0
Limmer & Trinidad Asphalt Co.	121,313	3	2
Constable Hart & Co.	118,487	17	8
M. J. Gleeson, Ltd., Cheam	116,521	0	4
W. Griffiths & Co.	114,856	12	0
A. Robinson, Harrow	114,607	18	4
Roads & Public Works, Ltd.	113,491	0	0
Percy Bilton (Roadways), Ltd.	113,036	13	10
John Mowlem & Co.	112,699	14	8
G. Wimpey & Co.	109,358	13	6
Howard, Farrow, Ltd.	107,782	3	2
W. & C. French, Ltd., Buckhurst Hill	107,617	15	0
G. P. Trentham, Ltd.	106,947	5	10
Ruddock & Meighan, Wealdstone	106,883	1	8
‡Fitzpatrick & Son, Bow	104,414	6	4

County library at Kenton—

Payne Bros., Watford	£9,113
J. C. Rackham, Harrow Weald	9,073
Rowley Bros., Ltd., Tottenham	9,056
Thomas Bros., Sudbury	8,591
Geo. Moss & Sons, Ltd., Southall	8,375
A. Robinson, Harrow	8,336
E. & L. Cotton, Ltd., Iver	8,297
H. C. Janes, Ltd., Luton	8,254
Davis (Contractors), Ltd.	8,205
Speirs, Ltd.	7,943
Y. J. Lovell & Son, Gerrards Cross	7,887
W. S. Try, Uxbridge	7,759
J. Honour & Son, Ltd., Tring	7,748
H. Pickrill, Wealdstone	7,719
Janes (Builders), Ltd., Slough	7,712
Taylor Woodrow Construction, Ltd., Southall	7,648
Mullen & Durkin, Ltd., Burnley	7,637
‡Commercial Structures, Ltd., Leyton	7,481

Neath.—12 houses at Tonmawr, for the R.D.C. Mr. J. T. Jones, F.S.I., engineer, 13, Orchard-street. Quantities by Mr. A. S. David :—

Jenkin, Thomas, Pontrhydyfen, Port Talbot	£6,259	17	5
T. R. Cockwell, Cromavon	5,744	16	5½
*John Morgan, Bridge Yard, Commercial-street, Neath	5,612	18	10

New Forest.—16 houses in Waterman-road, Dibden Purlieu, for the R.D.C. Mr. A. F. Read, surveyor :—

*R. R. Riggs, Marchwood, Hants ... £7,260 10

New Forest.—Pair of houses in Woodlands-road, Netley Marsh, for the R.D.C. Mr. A. F. Read, surveyor :—

*Turner & Stevens, Lyndhurst £1,092

Newark.—Pump-house at the Institution, for the Nottinghamshire C.C. Mr. L. Maggs, F.R.I.B.A., County Architect, Nottingham :—

*H. James (Mansfield), Ltd., Station-street, Mansfield £2,514

Newcastle.—Warehouse, for the Elswick Investment Trust Co. :—

*Hadden & Hillman, Huddleston-street, Newcastle.

Newcastle-upon-Tyne.—School at Whickham View, for the T.C. :—

*Benjamin Peel, Ltd., North Shields £100,968 6 4

Newcastle-on-Tyne.—Boiler-house in Portland-road, for Messrs. J. Dampney & Co. Messrs. Page, Son & Bradbury, architects, King-street, South Shields :—

*W. G. Knott, Pelaw, Felling-on-Tyne ... £350

North Kesteven.—(*a*) 126 houses and (*b*) 17 houses, for the R.D.C. :—

(*a*)—*Wiles, Dunholme.
(*b*)—*G. E. Barrell, Hykeham } £64,000

Northwich.—Widening and reconstructing to 50 ft. the Lostock Graham Canal Bridge, carrying Chester-Manchester-road A.556 over the Trent and Mersey Canal, for the Cheshire C.C. Mr. G. E. Ashforth, M.Sc., M.Inst.C.E., County Surveyor and Bridgemaster, Watergate House, Watergate-street, Chester :—

*Bethel & Sons, Ltd., Dane-road, Sale £8,004

Norton-Radstock.—Alterations and additions at The Hollies, Midsomer Norton, for the U.D.C. :—

*A. E. Harvey, Midsomer Norton ... £654 17

Norwich.—House at Cringleford, for Mr. Cyril Garland. Messrs. Buckingham & Berry, F.S.I., FF. and A.R.I.B.A., architects and surveyors, 43a, Prince of Wales-road :—

J. Youngs & Son, Ltd.	£1,591
W. S. Lusher	1,585
W. Evans & Son	1,557
Norgate Bros.	1,557
C. Craske	1,551
R. G. Carter, Ltd.	1,521
*T. Gill & Son	1,487

Nottingham.—Shops, etc., in Goosegates and Cranbrook-street, Hockley, for Messrs. Montague Burton, Ltd., Hudson-road Mills, Leeds, 9 :—

*Evans Bros. & Co., Riddings, Alfreton.

Nottingham.—Approach embankments to railway bridge over the River Leen, Beswood-road and Hucknall-lane, for the T.C. Mr. R. M. Finch, City Engineer :—

*Holborn Construction Co., Ltd., Holborn Viaduct, London £7,500

Nuneaton.—Shops and assembly hall in Queen's-road, for the Co-operative Society, Ltd. Mr. H. N. Jepson, A.R.I.B.A., architect, Midland Bank-chambers :—

Hope & Aldridge, Nuneaton	£23,998
N. Thomas & Sons, Ltd., Birmingham	23,852
W. A. Taberer & Co., Ltd., Nuneaton	23,124
W. H. Jones & Son, Ltd., Coventry	22,800
C. Bryant & Son, Ltd., Birmingham	22,778
G. Cooper & Sons, Ltd., Nuneaton	22,776
W. R. Lane & Son, Ltd., Coventry	22,290
G. E. & W. Wincott, Nuneaton	21,767
C.W.S., Ltd., Salford	21,604

Orston.—Permanent school for 80 children, for the Notts E.C. Mr. E. W. Roberts, A.R.I.B.A., County Architect, Nottingham :—

*P. W. Marston, Main-street, Old Balderton, Newark £2,350

Oswaldtwistle.—Provision of boundary railings, for the "Heyes" recreation ground, for the E.C. :—

*J. Lythgoe, Ltd., Walkden £127 17 10

Paisley.—Dye works at the Doulton Works in Hawkhead-road, for Messrs. A. Bell & Son, Ltd. Messrs. Abercrombie & Maitland, architects, County-square. Mr. Donald Dewar, measurer, 28a, High-street :—

Excavation, brick and mason — *J. Crawford, Potterhill.
Steel construction — *Redpath, Brown & Co., Ltd., Glasgow.
Joinery, carpentry and ironmongery — *Hugh Young, Paisley.
Plumber and sanitary—*J. Wilson & Son, Ltd., Paisley.

Perth.—Public school, for the Kinross and Perth C.C.s. Mr. Watt Allison, architect, York-place, Perth. Mr. S. C. Stephenson, measurer, Tay-street :—

Excavation, brick and mason—*R Brand & Son.
Joinery, carpentry and ironmongery—*R. Gow, Blair-Atholl.
Glazing, etc.—*P. & G. McLeod, Ltd.

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Cement and roughcasting—*D. Y. Ewan.
Iron railings and gates—*G. Ewart, Newson.

(Remainder of Perth.)

¶Portsmouth.—Classrooms, for H.M. Civil Engineer-in-Chief's Department, Admiralty :—

*F. J. Privett, Ltd., Cottage-grove, Portsmouth.

Redditch.—Rebuilding the "Railway Inn," Ewell-road, for Messrs. Mitchells & Butler, Ltd., Cape Hill Brewery, Smethwick. Mr. C. F. M. Fillmore, A.R.I.B.A., architect, 8, Newhall-street, Birmingham, 3 :—

*J. & A. Brazier, Ltd., Worcester-road, Bromsgrove.

Renfrewshire.—Houses on the Kilmalcolm housing site. Mr. John Coutts, architect, 8, Hunter-street, Paisley :—

Excavation, brick and mason—
*J. Crawford, Paisley £6,394
Plumber work and sanitary fixtures—
*J. Wilson & Son, Bridge of Weir 1,635
Joinery, carpentry and ironmongery—
*Houston & Young, Ltd., Barrhead ... 5,628
Plaster work and lathing, etc.—
*T. Thursby & Son, Clydebank 626
Slater work and roughcasting—
*A. G. Paton & Son, Johnstone 1,512
Painter, etc.—
*T. Hastie & Son, Glasgow 322
Electrical fittings and installation—
*Kennedy, Stark & Co., Paisley 516

Rugby.—Houses and sheds, for the R.D.C. :—

*Sabin & Young, Walsall—

4, at Princethorpe	£1,600
8, at Long Lawford	3,201 15

St. Albans.—Museum at Verulamium, for the T.C. :—

Turner & Payne, North Finchley	£10,170
S. T. Harvey, Ltd., Harpenden	9,170
H. C. Janes, Ltd., Luton	8,958
J. Dennis, St. Albans	8,898
H. E. Webster, Ltd., Harpenden	8,889
Ezra Dunham, Ltd., St. Albans	8,839
Tacchi & Burgess, St. Albans	8,810
*J. T. Bushall, Ltd., St. Albans	8,748

St. Helens.—Additional classrooms at Hamblett open-air school, Rainford-road, for the E.C. Messrs. Biram & Fletcher, FF.R.I.B.A., architects, 10, George-street :—

*Jos. Yearsley & Sons, Ltd., Fenton-street, St. Helens.

Shoreditch.—Demolition of 34-44, Dunston-street, for the B.C.—

*J. Ashton & Sons £95

South Shields.—652 houses at Horsley Hill, for the T.C. Mr. John Reid, A.M.Inst.C.E., Borough Engineer and Surveyor :—

*G. Bailey, Ltd., 19, King-street, South Shields £231,689 3

South Shields.—Branch premises, including butchers' and groceries departments, for the Jarrow and Hebburn Co-operative Society, Mr. G. C. Young, architect, Grange-road West, Jarrow :—

*C.W.S. Building Department, West Blandford-street, Newcastle.

Spenborough.—30 houses on the Firthcliffe site, Liversedge, for the U.D.C. Mr. A. Rothera, architect, Church-st., Cleckheaton :—

*F. Powell, Birkenshaw, near Bradford.

Stourbridge.—Rebuilding "Gipsy's Tent" hotel, Hagley, for Messrs. Showell's Brewery Co., Ltd., 120, Station-street, Burton-on-Trent. Messrs. Scott & Clarke, F.R.I.B.A., architects, Regent-chambers, Wednesbury :—

*J. Harper & Son (Blackheath), Ltd., Blackheath, Birmingham.

Stow-on-the-Wold (Glos.).—Station buildings, for the G.W.R. Mr. P. Emerson Culverhouse, F.R.I.B.A., chief architect, Paddington Station, W.2 :—

*W. T. Nicholls, Ltd., St. Paul's-road, Gloucester.

Strood.—28 houses at Halling, Stoke, Walnacott and Cobham, for the R.D.C. :—

*H. E. Budd £10,265 13

Sunderland.—Lodge, entrance gates and weighbridge at the Borough Mental Hospital, for the T.C. Mr. J. R. Lewis, Borough Engineer :—

*William Wigham & Sons, Castletown, Sunderland £2,596

Swansea.—Electrical lighting, etc., at the new junior school (block No. 2), at Gors-road, Cockett, for the T.C. Borough Architect:—

*Magneto Repair Co., Ltd., Electrical Engineers, Salubrious-passage, Swansea.

Tipton.—Houses on the Powis-avenue, for the U.D.C. Mr. Charles R. Gallie, A.R.I.B.A., Housing Director, Municipal-buildings, Sedgley-road West:—

*W. Whittingham, 57, Victoria-street, Wolverhampton.

(Subject to sanction of the M.H.)

Tipton.—Hotel on Tibbington estate, for Messrs. W. Butler & Co., Ltd., Springfield Brewery, Wolverhampton. Messrs. Scott & Clarke, F.R.I.B.A., architects, Regent-chambers, Wednesbury:—

*W. Kendrick & Son, Ltd., Tasker-street, Walsall.

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Ulverston.—64 houses, for the U.D.C. Surveyor's Department:—

*Baker & Foster, Devonshire Housing Estate, Ulverston.

Uxbridge.—Dwellings, etc., in Rockingham-road and The Lynch, Uxbridge, and Nelson and Newroads, Hillingdon, for the U.D.C. Mr. William L. Eves, F.R.I.B.A., 54, High-street:—

Taylor Woodrow Construction Co., Southall	£25,522 4 10
McManus & Co., Ltd., Whetstone	22,394 10 0
Horace Newby, Ltd., Lee	22,040 11 4
J. W. Jones, Weybridge	21,757 0 0
*E. J. G. Morgan, Oxford-road, Uxbridge	19,653 16 6
Houses only—	
O. T. Hedges, Rickmansworth	18,831 0 0

(Subject to approval of the M.H.)

Wakefield.—House in Crigglestone-lane, Bretton, for the Hon. Viscount Allendale, Bretton Park. Mr. L. Holdsworth, L.R.I.B.A., architect, 19, Kingstreet:—

Builders—*J. Marshall & Son.
Joiner—*F. S. Iveson.
Roof tiler—*J. W. Illingworth, Ltd.
Plumber—*E. Bell.
Plasterers—*Ellis & Longbottom.
Painters—*T. E. Taylor & Son.
(All of Wakefield.)

Walsall.—Hangar at Aerodrome, Aldridge-road, for the T.C. Mr. J. Taylor, Borough Engineer and Surveyor:—

*Walker Bros., Walsall.

Warrington.—Reconstruction of existing buildings and erection of additions, for the Rev. T. Allwork and Managers of Orford Parish Church Day Schools. Mr. E. F. Massey, A.R.I.B.A., architect, 27, Bold-street:—

*W. & A. Ashton, Bridge Foot, Warrington £3,000

Wath-on-Dearne.—Glass works in Common-lane, for Messrs. Water Stone Glass Works, Ltd. Messrs. Blackmoor & Sykes, architects, Ruskin-chambers, Scale-lane, Hull:—

*T. Wade & Sons, Ltd., Wath-on-Dearne.

Wellington (Salop).—Construction of disposal works scheme at Lillieshall, for the R.D.C. Major A. H. S. Waters, M.Inst.C.E., engineer, 25, Temple-row, Birmingham, 2:—

*Green'y Bros., Sedgley-road, Wolverhampton £15,996

Wells.—Swimming bath, fire station, etc., for the T.C.:—

W. Wood & Sons, Taplow	£8,366 19 9
D. R. Dunthorne, Glastonbury	8,089 16 5
*McIlwuish & Saunders, Wells	7,557 10 1

West Hartlepool.—58 houses in Old Town, for the T.C.:—

*Fordy & Sons, Boathouse-lane, Stockton-on-Tees.

West Hartlepool.—Extensions to open-air school, for the T.C. Mr. F. Durkin, Borough Engineer:—

*S. Baggott, West Hartlepool £4,000

Wolverhampton.—Additions to St. Mary's School in Cannock-road, for the Rev. M. R. Woulfe, P.P., Fallings Park. Mr. E. Bower Norris, architect, 22, Greengate, Stafford:—

*R. Speake & Son, Stafford-street, Wolverhampton.

Worcester.—Steel cantilever bridge, reinforced concrete bridge, viaduct and roads at Upton-on-Severn, for the Worcestershire C.C. Mr. B. C. Hammond, County Surveyor and Bridgemaster:—

*T. Vale & Sons, Ltd., Lombard-street, Stourport £57,705

Worksop.—Alterations to Kilton Hill hospital, for the Nottinghamshire C.C.:—

*G. G. Middleton & Sons, Ltd., 32, Gateford-road, Worksop £531

Yarmouth.—Houses, for the T.C.:—

Marsh-road, Cobholm, 6 blocks of 4—
*H. R. Middleton & Co., Ltd. £10,000
Bells Marsh-road, two blocks of 6 and two blocks of 4—
*H. A. Holmes & Sons, Ltd. 8,380
Gordon-road, 2 blocks of 8, 1 block of 4 and 1 pair—
*H. R. Middleton & Co., Ltd. 9,000

German Roads.

Some interesting facts concerning the construction of roads in Germany are contained in the preliminary report by the members of the Parliamentary Road Group of the German Roads Delegation (Capt. W. F. Strickland, M.P., Hon. Secretary) on the subject of their visit to Germany. The preliminary report is in the form of a booklet entitled "German Roads." It deals, among other things, with the magnitude of the German Motorway Scheme, the progress of its construction, the engineering design, the cost of construction and road safety.

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